[redacted]

SUPREME COURT OF THE UNITED STATES

October Term, 1963

No. 308

UNITED STATES, APPELLANT,

v.

PENN-OLIN CHEMICAL COMPANY, ET AL.

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

PROBABLE JURISDICTION NOTED DECEMBER 9, 1963

[redacted]

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1963

No. 503

UNITED STATES, APPELLANT,

vs.

PENN-OLIN CHEMICAL COMPANY, ET AL.

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Volume I

INDEX

	Original	Print
Record from the United States District Court for the District of Delaware		
Amended complaint	a	1
Answer of Olin Mathieson Chemical Corporation to amended complaint	l	9
Answer of Penn-Olin Chemical Company to amended complaint	q	12
Answer of Pennsalt Chemicals Corporation to amended complaint	t	14
Transcript of trial hearings, October 30 through November 22, 1961 (excerpts)	1	17
Appearances	1	17
Statement of Mr. Freed	5	17
Offers in evidence of plaintiff's exhibits Nos. 1 through 414 and colloquy thereon	129	24
Testimony of Fred H. Berggren—direct	197	66
—cross	237	91

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
Transcript of trial hearings, October 30 through November 22, 1961 (excerpts)—Continued		
Testimony of Alvin J. Dirksen—direct	258	103
—cross	276	114
Testimony of Stanley Osborne—direct	297	124
—cross	327	142
—redirect	338	148
Testimony of John O. Logan—direct	339	150
—cross	411	190
Offer in evidence of plaintiff's exhibit No. 415	418	194
Stipulation re pleadings	425	199
Testimony of John O. Logan (resumed)—cross	426	199
Colloquy between Court and counsel	443	209
Testimony of John O. Logan (continued)—cross	449	212
—redirect	487	235
Testimony of Christopher F. Bingham—direct	490	236
—cross	505	245
—redirect	525	246
Testimony of Hugh C. Land—direct	529	248
—cross	595	287
—redirect	649	319
—recross	655	323
Testimony of William P. Drake—direct	657	324
—cross	721	363
—redirect	786	402
Testimony of Lawrence A. Adams—direct	795	404
—cross	805	410
Testimony of Thomas L. War—direct	806	411
—cross	810	413
Offers in evidence of defendants' exhibits Nos. 1 through 49 and plaintiff's exhibits Nos. 416 through 428, and colloquy thereon	815	416
Transcript of oral argument, October 31, 1962 (excerpts)	846	419
Appearances	846	419
Colloquy between Court and Mr. Freed	847	419
PLAINTIFF'S EXHIBITS:		
1—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.501, dated July 18, 1955	890	441
2—Memorandum from W. W. Northgraves Olin Mathieson to Dr. B. H. Wojcik, dated May 8, 1956	898	451
3—Memorandum from Russell Hopkinson to Dr. N. O. Stein, dated July 5, 1956	901	454
4—Memorandum from J. O. Logan, Olin Mathieson to R. Hopkinson, dated July 18, 1956	902	454

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
PLAINTIFF'S EXHIBITS—Continued		
5—Memorandum from N. O. Stein to R. Hopkinson, dated July 10, 1956	903	455
6—Memorandum from Russell Hopkinson, Olin Mathieson to J. O. Logan, dated July 13, 1956	904	456
7—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.502, dated July 26, 1956 (excerpts)	905	457
8—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.503, dated October 12, 1956 (excerpts)	917	469
9—Memorandum from B. H. Wojcik to J. O. Logan, re: La Societe D'Electrochimie D'Ugines, Baltimore Visit—E. M. Elchardus and J. Kraft, dated November 20, 1956	924	474
10—Market Research Report, "Sodium Chlorate", prepared by J. J. Hayes, dated December 1956 (excerpts)	928	479
11—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.504, dated March 1, 1957 (extracts)	936	487
12—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.505, dated November 21, 1956-February 26, 1957 (excerpts)	941	491
13—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.506, dated March 6, 1957 (excerpts)	943	493
14—Memorandum from J. O. Logan, Olin Mathieson to Dr. B. H. Wojcik, dated February 19, 1958	944	494
14A—Memorandum from H. W. Schiessl to J. O. Logan, dated March 27, 1958	945	495
15—Olin Mathieson, Industrial Chemicals Division Report, "Division Objectives", dated April 4, 1958	952	503
16—Olin Mathieson Chemical Corporation, Engineering Survey Report, H-35.701, dated April 29, 1958 (excerpts)	964	515
17—Memorandum from W. C. Gardiner, Olin Mathieson to B. H. Wojcik, dated June 27, 1958	968	518
18—Memorandum from B. H. Wojcik to Dr. W. C. Gardiner, dated July 2, 1958	969	519
19—Memorandum from B. H. Wojcik to Mr. R. S. Fodor, dated July 2, 1958	970	520

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
Plaintiff's Exhibits—Continued		
20—Extract from the Minutes of Division Management Meeting held on July 28, 1958	971	521
21—Memorandum from R. C. Harshman, Olin Mathieson to B. H. Wojcik, dated August 19, 1958	972	521
23—Memorandum from R. S. Fodor to Dr. W. C. Gardiner, dated October 3, 1958	975	525
24—Memorandum from W. C. Gardiner, Olin Mathieson to J. E. Baker, dated November 12, 1958	978	528
25—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.507, dated December 11, 1958 (excerpts)	979	529
26—Memorandum from B. H. Wojcik to N. H. Collisson, dated January 2, 1959	996	547
27—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.508, dated January 9, 1959 (excerpts)	997	548
28—Memorandum from W. C. Gardiner, subject "Sodium Chlorate—Vickers-Krebs", dated February 11, 1959	1003	553
29—Memorandum from B. H. Wojcik to Dr. W. C. Gardiner, dated February 16, 1959	1006	556
31—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.509, dated February 25, 1959 (excerpts)	1007	558
32—Olin Mathieson, Chemicals Division Report, "Capital Requirements for Major Expansion Items, 1959-1964 Inc.", dated April 10, 1959 (extracts)	1013	563
33—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, H-35.510, dated April 17, 1959 (excerpts)	1021	571
34—Memorandum from E. H. Bellows to Mr. S. de J. Osborne, dated April 23, 1959 (extract)	1028	577
37—Memorandum from O. J. Theobald, Olin Mathieson to Mr. K. C. Frazier, dated May 1, 1959	1030	579
38—Letter from Vickers Krebs, R. K. Thoman to Mr. B. H. Nicolaisen, dated May 22, 1959	1031	580
39—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, U-2.501, dated July 15, 1959 (excerpts)	1032	581

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
Plaintiff's Exhibits—Continued		
40—Memorandum from K. C. Frazier, Olin Mathieson to W. A. King, dated July 27, 1959	1044	593
41—Memorandum from W. A. King to J. O. Logan, dated July 28, 1959	1045	594
42—Memorandum from W. W. Northgraves, Olin Mathieson to Mr. J. G. Chalfant, dated August 7, 1959	1046	595
43—Memorandum from J. O. Logan to W. A. King, dated August 12, 1959	1048	597
44—Extract from the Minutes of Division Management Meeting held on August 17, 1959	1049	597
45—Memorandum from B. H. Wojcik to E. Block re: "Vickers Krebs Sodium Chlorate Cell Development Agreement", dated August 18, 1959	1050	598
46—Extract from the Minutes of Division Management Meeting held on August 31, 1959	1051	599
48—Letter from R. K. Thoman, Vickers Krebs to Dr. B. H. Wojcik, dated September 4, 1959	1052	600
49—Letter from B. H. Wojcik to R. K. Thoman, Vickers Krebs, dated October 5, 1959	1054	601
50—Letter from R. K. Thoman, Vickers Krebs to Dr. B. H. Wojcik, dated October 26, 1959	1055	602
51—Letter from B. H. Wojcik to R. K. Thoman, Vickers Krebs, dated November 9, 1959	1056	603
53—Memorandum from B. H. Nicolaisen to Dr. B. H. Wojcik, dated November 25, 1959	1057	604
54—Letter from R. B. Spence, Vickers Krebs to Dr. B. H. Wojcik, dated January 14, 1960	1059	606
56—Olin Mathieson Chemical Corporation, Electrochemical Survey Report, U-2.502, dated April 27, 1960 (extracts)	1061	608
57—Olin Mathieson Chemicals Division Report, "Capital Requirements 1960-1964 Incl. (Ex. Organics)", July 1960 (extracts)	1068	615
58—Letter from Wm. P. Drake to Mr. John Logan, Mathieson Chemical, dated May 22, 1953	1077	623
59—Letter from J. O. Logan, Mathieson Chemical to Mr. W. P. Drake, Pennsylvania Salt Mfg. Co., dated May 25, 1953	1078	624
60—Letter from Wm. P. Drake to Mr. John O. Logan, Mathieson Chemical, dated July 31, 1953 with Chlorine Dioxide Agreement, dated July 31, 1953	1079	625

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
PLAINTIFF'S EXHIBITS—Continued		
61—Memorandum from W. F. Mitchell to F. A. Lucard, dated September 10, 1954	1084	628
63—Memorandum from R. W. Wurst, Pennsalt Chemicals to G. D. Grogan, dated February 2, 1955	1085	629
64—Memorandum from Wm. P. Drake to A. S. Woodard, dated February 18, 1955	1088	632
65—Letter from G. D. Grogan, Pennsylvania Salt Mfg. Co. to Malcolm McDonald, The Champion Paper Fibre Co., dated February 25, 1955	1089	632
66—Memorandum from A. S. Woodard to W. P. Drake, dated March 8, 1955	1090	634
67—Memorandum from Wm. P. Drake to H. C. Land, dated March 23, 1955	1091	635
71—Memorandum from William P. Drake to Mr. F. C. Shanaman, dated December 17, 1956	1092	636
72—Memorandum from F. C. Shanaman to Mr. W. P. Drake, dated December 20, 1956	1093	637
73—Memorandum from H. C. Land to W. P. Drake, dated December 27, 1956	1094	638
74—Memorandum from W. Cooper Willits to Dr. W. A. LaLande, Jr., dated January 22, 1957	1095	639
75—Memorandum from F. C. Shanaman to G. E. More and E. H. Karr, dated January 22, 1957	1096	640
76—Memorandum from William P. Drake to Dr. W. A. LaLande, Jr., dated February 21, 1957	1097	641
82—Memorandum from W. A. LaLande, Jr. (for the Committee) to William P. Drake, dated March 12, 1957	1098	642
83—Memorandum from F. C. Shanaman to Dr. W. A. LaLande, dated March 26, 1957	1103	646
84—Memorandum from W. Cooper Willits to file, dated March 27, 1957	1104	647
87—Letter from Arthur D. Little, Inc., John H. Adams to Robert Eastman, Pennsylvania Salt Mfg. Co., dated April 18, 1957	1105	648
89—Extract from Management Committee Meeting No. 59, held April 26, 1957 (Pennsalt)	1108	651
96A—Memorandum from W. A. LaLande, Jr., to William P. Drake, dated October 16, 1957	1109	652

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
Plaintiff's Exhibits—Continued		
96B—"Markets for Sodium Chlorate East of the Rocky Mountains", report to Pennsalt Chemicals Corporation, August 19, 1957, prepared by Arthur D. Little, Inc. (excerpts)	1110	653
96C—Commercial Development Department, Pennsalt Chemicals, Report, dated October 16, 1957 (excerpts)	1126	669
97—Memorandum from H. C. Land to G. R. Lawson, dated November 8, 1957	1143	685
98—Memorandum from G. D. Grogan to G. R. Lawson, dated November 15, 1957	1144	686
99—Memorandum from R. J. Eastman to R. W. Sloan, dated November 18, 1957	1145	687
100—Memorandum from W. A. Lande, Jr. to William P. Drake, dated November 19, 1957 with transmittal memo from A. S. Woodard to Dr. W. A. LaLande, Jr. of same date	1148	690
102—Memorandum from W. Cooper Willits to File, dated December 5, 1957	1150	692
103—Letter from Pennsalt of Washington Division, Fred Shanaman to John O. Logan, dated December 17, 1957	1152	693
104—Letter from Pennsalt of Washington Division, Fred Shanaman to Derek Richardson, dated December 17, 1957	1153	694
105—Letter from J. O. Logan to F. C. Shanaman, dated December 19, 1957	1155	696
107—Memorandum from G. R. Lawson to H. C. Land, dated January 7, 1958	1156	697
109—Letter from J. O. Logan to F. C. Shanaman, dated January 14, 1958	1157	698
110—Letter from Pennsalt of Washington Division, Fred Shanaman to J. O. Logan, dated January 16, 1958	1158	699
111—Memorandum from J. O. Logan to File, dated February 4, 1958	1159	700
116—Olin Mathieson Bulletin No. 1583, dated February 24, 1958, subject, "Sodium Chlorate"	1160	701
122—Memorandum from Edwin E. Tuttle to File, dated April 22, 1958	1161	702
123—Letter from O. J. Theobald, Jr. to L. M. Shanaman, dated May 22, 1958	1162	704
124—Memorandum from G. R. Lawson to H. C. Land, dated May 28, 1958	1163	705
125—Letter from L. M. Shanaman to O. J. Theobald, dated May 28, 1958	1165	706

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
Plaintiff's Exhibits—Continued		
131—Memorandum from F. C. Shanaman to Hugh Land, dated August 5, 1958	1166	707
132—Letter from Walter Kidde Engineers-Southwest, Inc., Harry Haines to Dr. W. A. LaLande, Jr., dated July 1, 1958	1167	708
133—Memorandum from H. C. Land to F. C. Shanaman, dated September 8, 1958	1169	709
135—Memorandum from F. C. Shanaman to H. C. Land, dated September 10, 1958	1170	710
136—Extract from Management Committee Meeting No. 88, held September 11, 1958 (Pennsalt)	1171	711
137—Memorandum from H. C. Land to F. C. Shanaman, dated September 17, 1958	1172	712
139—Memorandum from William P. Drake to H. C. Land and F. C. Shanaman, dated September 26, 1958	1174	713
141—Extract from Management Committee Meeting No. 89, held October 13, 1958 (Pennsalt)	1175	714
142—Memorandum from William P. Drake to H. C. Land and F. C. Shanaman, dated October 17, 1958	1176	715
143—Memorandum from R. J. Eastman to R. W. Sloan, dated October 29, 1958 (excerpt)	1177	716
146—Memorandum from R. J. Eastman to R. W. Sloan, dated November 11, 1958	1179	718
148—Extract from Management Committee Meeting No. 90, held November 13, 1958 (Pennsalt)	1184	724
151—Extract from Management Committee Meeting No. 93, held January 9, 1959 (Pennsalt)	1185	725
154—Memorandum from E. E. Tuttle to Drake, LaLande, McWhirter and Willits, dated January 29, 1959 subject, "Appropriations Committee Meeting No. 15"	1186	726
160—Letter from John O. Logan to W. P. Drake, dated February 27, 1959	1188	728
165—Memorandum from W. A. LaLande, Jr. to William P. Drake, dated April 10, 1959	1189	729
166—Memorandum from William P. Drake to Dr. W. A. LaLande, Jr., dated April 20, 1959	1191	731
168—Extract from the Minutes of Division Management Meeting held on June 8, 1959 (Olin Division)	1192	731

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
PLAINTIFF'S EXHIBITS—Continued		
172—Memorandum from William P. Drake to H. C. Land and W. A. LaLande, Jr., dated November 17, 1959	1193	732
173—Memorandum from N. M. Walker to W. P. Drake, dated December 14, 1959	1194	733
174—Memorandum from H. C. Land to W. P. Drake, dated December 30, 1959	1196	734
175—Letter agreement between Olin Mathieson and Pennsalt Chemicals, dated February 11, 1960	1198	736
176—Penn-Olin Chemical Company Certificate of Incorporation, dated February 24, 1960	1201	739
181—Agreement between Pennsalt Chemicals, Olin Mathieson and Penn-Olin, dated January 2, 1961	1220	755
184—Extract from Policy and Planning Council Meeting No. 1, held January 6, 1960 (Pennsalt)	1242	771
185—Memorandum from E. Block to S. de J. Osborne, dated January 22, 1960	1243	771
186—Memorandum from A. H. Clem to File, dated January 25, 1960	1244	772
188—Memorandum from J. G. McMullen to C. L. Williamson, dated January 29, 1960	1246	773
189—Memorandum from R. W. Sloan to A. H. Clem, dated February 1, 1960 (excerpt)	1249	777
190—Memorandum from J. G. Johns to File, dated February 3, 1960	1250	778
191—Minutes of Meeting—Pennsalt-Olin Mathieson held February 4, 1960	1251	780
192—Pennsalt Notes	1253	782
193—Memorandum entitled "PennOlin Chemicals (?) Corporation	1254	782
194—Handwritten notes, dated 2/4/60 (Olin D73 Logan)	1255	785
195—Memorandum on "Visit to Pennsalt Chemical Corporation", by W. C. Gardiner, dated February 4, 1960	1258	789
198—Williamson handwritten notes, dated 2/11/60 (Penn-Olin C67), February 11, 1960	1261	793
199—Memorandum from William P. Drake to File, dated February 12, 1960	1263	795
201—Pennsalt New- Release, February 15, 1960 announcing "Pennsalt Chemicals and Olin Mathieson Announce Joint Chlorate Venture"	1264	796
202—Memorandum from G. D. Grogan to All Salesmen, dated February 17, 1960	1266	797

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
PLAINTIFF'S EXHIBITS—Continued		
203—Extract from Full Management Council Meeting No. 1, held February 18, 1960	1267	798
205—Memorandum from A. S. Woodward to J. McWhirter, dated February 26, 1960	1268	799

Volume II

206—Memorandum from G. D. Grogan to J. McWhirter, dated February 29, 1960	1270	801
208—Memorandum from J. G. Johns to J. O. Logan, dated March 7, 1960	1272	802
209—Memorandum from E. E. Tuttle to File, dated March 9, 1960	1274	804
210—Memorandum from Russell Hopkinson to S. de J. Osborne, dated March 9, 1960	1276	807
215—Memorandum from G. D. Grogan to A. H. Clem, dated March 23, 1960 with Memorandum from A. H. Clem to G. D. Grogan, dated March 25, 1960 and Memorandum from G. D. Grogan to A. H. Clem, dated March 31, 1960	1277	809
218—Memo from Vernon Woodside to N. F. Wilmot, dated April 8, 1960	1280	811
220—Extract from Appropriations Committee Meeting No. 35, held April 13, 1960 (Pennsalt)	1281	812
223—Memorandum from J. G. Johns to R. C. Phillips, dated April 20, 1960	1282	813
225—Letter from J. McWhirter to Albert H. Clem, et al, dated May 2, 1960	1283	814
226—Memorandum from W. H. Brandt to J. G. Johns, dated May 6, 1960	1284	815
228—Memorandum from J. G. Johns to G. M. Cunningham, dated May 18, 1960 and Memorandum from G. M. Cunningham to O. J. Theobald, Jr., dated February 26, 1960	1285	816
229—Extract from Appropriations Committee Meeting No. 37, held May 26, 1960 (Pennsalt)	1287	817
232—Memorandum from W. H. Brandt to J. G. Johns, dated June 6, 1960 with a summary report of the information developed in the recent study on sodium chlorate (excerpts)	1288	818
241—Memorandum from A. S. Woodard to J. McWhirter, dated July 26, 1960 (excerpt)	1300	827

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
Plaintiff's Exhibits—Continued		
242—Memorandum from R. L. Dietrich to CAR Committee, dated July 28, 1960 with CAR Committee Discussion Penn-Olin Sodium Chlorate Plant, July 28, 1960	1301	828
243—CAR Committee Discussion, Penn-Olin Sodium Chlorate Plant, July 29, 1960	1304	830
244—Pennsalt Appropriation Request: "Penn-Olin Chemical Company, dated July 29, 1960	1306	832
245—Olin Special Meeting Minutes, August 1, 1960	1308	834
247—Memorandum from J. L. Wood to E. Block, subject, "Chlorate Plant Study Using Vicker-Krebs Bid", dated August 2, 1960 (excerpts)	1312	838
250—Letter from W. Cooper Willits to Walter F. O'Connell, dated August 19, 1960	1313	839
251—Memorandum from A. S. Woodard to J. McWhirter, dated August 22, 1960	1314	840
252—Extract of Financial and Operating Policy Committee, Minutes of Meeting of August 24, 1960 (Olin)	1316	842
253—Olin Mathieson Capital Appropriation Request, dated August 29, 1960	1317	843
254—Penn-Olin Chemical Company, Capital Appropriation Request, Sodium Chlorate Plant, Calvert City, Kentucky, Revised August 29, 1960 (excerpts)	1318	845
255—Wall Street Journal Extract—"Olin Mathieson to Build $13 Million Chemical Plant in Tennessee, August 29, 1960	1324	850
256—Letter from A. F. Pilling to Olin Mathieson, dated August 30, 1960	1325	851
257—Pennsalt Appropriation Request: Penn-Olin Chemical Company, September 1, 1960	1326	852
259—Memorandum from W. Cooper Willits to William P. Drake, dated September 6, 1960	1328	853
263—Memorandum from L. P. Schell to C. C. Hightower, dated September 14, 1960 with the proposed 1961 Capital and Expense Budget	1330	855
265—Contract between American Potash & Chemical Corporation and Olin Mathieson, dated September 20, 1960 (excerpts)	1334	857
267—Telegram from Janet Lee to E Block, dated September 22, 1960	1336	858

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
Plaintiff's Exhibits—Continued		
268—Memorandum from R. L. Dietrich to "Those Present", Subject, "CAR Committee Meeting, September 20, 1960" (extract)	1337	859
270—Memorandum from J. M. McCullough to L. M. Shanaman, dated October 3, 1960	1338	860
271—Letter from J. McWhirter to John O. Logan, dated October 7, 1960	1339	861
282—Memorandum from W. Penfield to Collins, LaLande, Land, Lawson, McWhirter and Willits, dated November 23, 1960	1341	865
286—Memorandum from J. J. Garland to R. Kennedy, dated December 21, 1960	1342	866
287—Contract between Olin Mathieson and West Virginia Pulp & Paper Co., dated December 22, 1960 (excerpt)	1343	869
288—Letter from J. G. Johns to Roy Shanaman, dated December 30, 1960	1344	871
289—Letter from J. G. Johns to Roy Shanaman, dated December 30, 1960	1346	872
294—Minutes of First Meeting of Board of Directors of Penn-Olin Chemical Company, March 8, 1960	1347	874
295—Memorandum from C. L. Williamson to James McWhirter, dated April 22, 1960	1353	880
299—Letter from W. Cooper Willits to Walter F. O'Connell, dated November 9, 1960	1354	881
300—Letter from Richard Bryce to W. Cooper Willits, dated November 11, 1960	1356	882
302—Letter from W. Cooper Willits to Walter F. O'Connell, dated December 23, 1960 (excerpt)	1357	883
303—Letter from Donald R. Jackson to W. Cooper Willits, dated December 29, 1960	1359	885
305—Letter from Edwin E. Tuttle to C. L. Williamson, dated January 6, 1961 (excerpt)	1360	886
306—Letter from C. L. Williamson to W. Cooper Willits, dated January 9, 1961	1361	887
308—Letter from C. L. Williamson to W. Cooper Willits, dated January 13, 1961	1362	888
309—Letter from Donald R. Jackson to C. L. Williamson, dated January 18, 1961	1363	889
310—Letter from W. Cooper Willits to Walter F. O'Connell, dated February 3, 1961	1364	890
311—Letter from DRJ to W. Cooper Willits, dated February 9, 1961	1365	891
312—Letter from W. Cooper Willits to Richard Bryce, dated February 10, 1961	1366	892

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
PLAINTIFF'S EXHIBITS—Continued		
313—Letter from Edwin E. Tuttle to C. L. Williamson, dated February 17, 1961 enclosing copy of deposit slip	1367	893
314—Letter from W. Cooper Willits to Walter F. O'Connell, dated March 14, 1961	1369	897
315—Letter from Donald R. Jackson to W. Cooper Willits, dated March 21, 1961	1371	898
316—Letter from Edwin E. Tuttle to C. L. Williamson, dated March 23, 1961 (excerpt)	1372	899
317—Penn-Olin Bank Statement, dated April 5, 1960	1373	901
320—Penn-Olin Bank Statement, dated December 5, 1960	1374	902
322—Penn-Olin Bank Statement, dated February 6, 1961	1375	903
323—Penn-Olin Bank Statement, dated March 3, 1961	1376	904
324—Penn-Olin Bank Statement, dated April 5, 1961	1377	905
328—Penn-Olin Financial Statement as of April 11, 1960	1378	907
329—Penn-Olin Balance Sheet as of April 30, 1960	1379	908
330—Penn-Olin Balance Sheet as of May 31, 1960	1381	910
336—Memorandum from C. V. Mayne to C. L. Williamson, dated February 27, 1961 with schedule showing pre-tax loss for month of January 1961	1386	912
337—Statement showing Penn-Olin Sodium Chlorate Sales and Earnings, January 1961	1388	914
338—Statement showing Penn-Olin Sodium Chlorate Sales and Earnings, February 1961	1389	915
339—Pennsalt Capital Investment Policy No. 1	1390	916
340—Statement showing Net Return on Shareholders' Equity, Pennsalt vs. Competition, May 3, 1961	1391	917
349—Letter from Derek Richardson to L. M. Shanaman, dated February 12, 1958	1392	918
352—Memorandum from F. C. Shanaman to Wm. P. Drake, dated March 12, 1959	1393	919
358—Memorandum from J. O. Logan to J. G. Johns, dated November 18, 1959	1394	920
359—Memorandum from J. G. Johns to J. G. McMullen, dated December 10, 1959	1395	921
364—Memorandum from J. O. Logan to W. F. O'Connell, dated August 11, 1960	1396	922

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
Plaintiff's Exhibits—Continued		
366—Electrochemical Survey Report, "Sodium Chlorate Cell with Platinized Titanium Anodes", dated December 14, 1960 (handwritten) (excerpts)	1397	923
376—Statistical Data (excerpts)	1400	927
Statement showing Shipments of Sodium Chlorate by Domestic Commercial Producers during 1960, by Regions	1400	927
Indexes for Sodium Chlorate and Industrial Chemicals Production	1401	928
377—Olin Interrogatories and answers Nos. 1, 5 and 66 and Pennsalt Interrogatories and answers Nos. 1, 5 and 47—Personnel (excerpts)	1402	928
378—Olin Interrogatories and answers Nos. 8 and 52—Chlorine Dioxide Processes and Installation (excerpts)	1416	937
379—Interrogatory No. 16—Pennsalt and Penn-Olin answers—Origin of raw materials	1420	940
Pennsalt Interrogatory No. 45 and answer—Treatment of Penn-Olin in Pennsalt Financial Statement (excerpts)	1421	941
382—Pennsalt Interrogatory No. 82—Pennsalt sodium chlorate Productive capacity (excerpts)	1422	942
385—Pennsalt Interrogatory 84—Pennsalt's Sales in the Southeast	1423	942
386—Olin Interrogatory and answer No. 76—Olin salesmen selling or soliciting sales of sodium chlorate	1427	944
387—Olin Interrogatory 13—Sodium Chlorate purchased from Pennsalt and Consumed by Olin	1429	945
389—Olin Interrogatory and answer No. 80—Olin's new capital investment projects in inorganic chemicals	1431	946
391—Olin Interrogatory and answer No. 27—Pennsalt competitors in hydrofluoric acid and calcium hypochlorite	1432	946
392 A and B—Excerpts from deposition of William P. Drake	1433	948
392 C—Excerpts from pretrial oral examination of William P. Drake	1643	1084
393—Excerpts from deposition of Fred C. Shanaman—direct	1689	1105
—cross	1765	1147
—redirect	1769	1149

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
Plaintiff's Exhibits—Continued		
394—Excerpts from pretrial oral examination of Albert H. Clem	1772	1151
396—Excerpts from deposition of William Cooper Willits	1784	1157
397—Excerpts from oral deposition of George T. Collins	1792	1162
398—Excerpts from deposition of James McWhirter—direct	1813	1171
—cross	1834	1181
399—Excerpts from pretrial oral examination of George Davidson Grogan	1837	1182
400—Excerpts from deposition upon oral examination of Hugh C. Land—direct	1860	1192
401—Excerpts from deposition of William Cecil Gardiner—direct	1890	1208
402—Excerpts from deposition of Stanley de J. Osborne—direct	1927	1228
—cross	1953	1239
—redirect	1960	1242
403—Excerpts from deposition of Derek Richardson—direct	1964	1245
404—Excerpts from deposition of Dr. Norman O. Stein—direct	1978	1251
405—Excerpts from deposition of Cecil L. Williamson—direct	1992	1257
406—Excerpts from deposition of Dr. Bruno H. Wojcik—direct	2003	1262
407—Excerpts from deposition of Joseph Leonard Wood—direct	2139	1323
408—Excerpts from deposition of John O. Logan—direct	2193	1347
409—Excerpts from deposition of Russell Hopkinson—direct	2290	1401
410—Excerpts from deposition of James G. Johns—direct	2373	1437
411—Excerpts from deposition of Walter W. Northgraves—direct	2399	1447
412—Sodium Chlorate Data Stipulation, dated November 6, 1961 with Tables 1, 2, 3, 5, 6 & 7 attached	2437	1463
413—Nonchlorate stipulation, dated November 6, 1961 and Appendix A	2445	1471
414—General Stipulations, Set I (excerpts)	2450	1475
415—Memorandum from Peter Colefax to Board of Directors, subject, "New Sodium Chlorate Plant in Mississippi", dated February 12, 1957	2466	1484

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
Plaintiff's Exhibits—Continued		
420—Extract from Management Committee Meeting No. 103, June 25, 1959 (Pennsalt)	2471	1490
422—Memorandum from Kennett Lewis to C. C. Hightower, dated August 28, 1959	2472	1491
424—Memorandum from M. T. Ramstad to R. T. Mills, dated April 29, 1960	2473	1492
426—Extract of Financial and Operating Policy Committee, Minutes of Meeting of September 27, 1960 (Olin)	2474	1493
427—Extract from Appropriations Committee Meeting No. 41, October 14 and November 3, 1960 (Pennsalt)	2475	1494
428—Memorandum from Corporate Staff to E. Block, subject, "Staff Comment on Chemicals Division Whither Report", dated October 14, 1960 (extract)	2477	1496
Defendants' Exhibits:-		
1—Memorandum from R. J. Eastman to R. W. Sloan, dated November 11, 1958	2485	1503
2—Memorandum from P. C. Staples to H. C. Land, dated August 15, 1960 with letter from Perkins McGuire, Asst. Secretary of Defense to Mr. Errol H. Karr, dated August 9, 1960	2486	1504
11—Extract from Appropriations Committee Meeting No. 12, held December 23, 1958	2489	1506
12—Memorandum by GTC (Collins) data entitled "Sodium Chlorate—Calvert City", dated August 23, 1956	2490	1507
13—Memorandum from W. C. Gardiner to B. H. Wojcik, dated March 26, 1957	2491	1508
14—Memorandum from W. L. Huntington to G. R. Evans, dated January 17, 1958 (excerpts)	2493	1509
15—Memorandum from G. R. Evans to A. S. Woodard, dated January 31, 1958	2494	1510
16—Memorandum from J. O. Logan to C. W. Frost, dated January 31, 1958	2495	1511
21—Memorandum from W. C. Gardiner to Dr. B. H. Wojcik, dated December 11, 1958	2496	1512
22—Memorandum from C. W. Frost to J. O. Logan, dated April 14, 1959	2498	1514
23—Letter from John O. Logan to L. M. Shanaman, dated April 21, 1959	2499	1515

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
DEFENDANTS' EXHIBITS—Continued		
24—Memorandum from K. C. Frazier to W. A. King, dated May 1, 1959	2500	1516
25—Memorandum from R. R. Shively to W. A. King, dated July 28, 1959	2501	1517
30—Memorandum from A. H. Clem to File, dated January 29, 1960	2502	1518
32—Memorandum from L. S. Howe to Russell Hopkinson, dated February 18, 1960	2504	1520
33—Memorandum from H. J. Reed to R. Hopkinson, dated March 8, 1960	2507	1523
36—Memorandum from C. L. Williamson to R. Hopkinson, dated April 25, 1960	2509	1524
40—Penn-Olin Estimated Earnings and Return on Investment, Revised July 27, 1960 to Include Resale Operations and Alternate Capitalization Plan (excerpt)	2520	1526
41—Memorandum from A. S. Woodard to J. McWhirter, dated August 16, 1960	2511	1527
42—Memorandum from H. J. Reed to S. de J. Osborne, Staff Coordinating Committee, CAR Committee, dated August 22, 1960	2513	1528
45—Memorandum from George H. Nusloch, II to J. L. Pickens, dated November 9, 1960	2522	1537
49—Plaintiff's answers to Interrogatories 1-4 (Set II)	2524	1539
Opinion, Steel, J.	2530	1543
Order entering judgment	2601	1590
Notice of appeal to the Supreme Court of the United States	2603	1591
Order of the United States District Court extending time to docket case	2606	1592
Order allowing certiorari	2608	1593

[fol. a]

IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

UNITED STATES OF AMERICA, Plaintiff,

v.

PENN-OLIN CHEMICAL COMPANY, OLIN MATHIESON CHEMICAL CORPORATION, AND PENNSALT CHEMICALS CORPORATION, Defendants.

AMENDED COMPLAINT—Filed August 8, 1961

The United States of America, plaintiff, by its attorneys acting under the direction of the Attorney General of the United States, brings this civil action against the defendants named herein, and complains and alleges as follows:

I

Jurisdiction and Venue

1. This complaint is filed and this action is instituted against the defendants under Section 15 of the Act of Congress of October 15, 1914, c. 323, 38 Stat. 736, as amended, entitled "An Act to supplement existing laws against unlawful restraints and monopolies and for other purposes," commonly known as the *Clayton Act*, in order to prevent and restrain the continuing violation by the defendants, as hereinafter alleged, of Section 7 of the said Act, and under Section 4 of the Act of Congress of July 2, 1890, c. 647, 26 Stat. 209, as amended, entitled "An Act to protect trade and commerce against unlawful restraints and monopolies," commonly known as the *Sherman Act*, in order to prevent and restrain the continuing violation by the defendants, as hereinafter alleged, of Section 1 of said Act.

[fol. b] 2. The defendant Penn-Olin Chemical Company may be found within the District of Delaware.

II

Defendants

3. Penn-Olin Chemical Company, hereinafter referred to as Penn-Olin, is named a defendant herein. Penn-Olin is a corporation organized and existing under the laws of the State of Delaware and has its principal office in Wilmington, Delaware.

4. Pennsalt Chemicals Corporation, hereinafter referred to as Pennsalt, is named a defendant herein. Pennsalt is a corporation organized and existing under the laws of the Commonwealth of Pennsylvania and has its principal office in Philadelphia, Pennsylvania.

5. Olin Mathieson Chemical Corporation, hereinafter referred to as Olin Mathieson, is named a defendant herein. Olin Mathieson is a corporation organized and existing under the laws of the Commonwealth of Virginia and has its principal office in New York, New York.

III

Trade and Commerce

6. Olin Mathieson, a leading producer of chemicals and other products, is among the forty-one largest industrial corporations in terms of assets and the sixty largest industrial corporations in terms of sales in the United States. In 1959 it had assets approximating $839,000,000 and sales in excess of $700,000,000. Thirty-one percent of these sales, or about $218,000,000 were accounted for by Olin Mathieson's Chemicals Division. The plants in which Olin Mathieson produces its large variety of chemicals and chemical products are located in at least 22 states. Raw materials and ingredients destined for these plants, as well as the products which emanate from them, are purchased, distributed or sold in interstate commerce.

[fol. 6] 7. Pennsalt is one of the larger chemical companies in the United States. In 1959 it had assets in excess of $90,000,000 and sales of about $87,500,000. It manufactures close to 400 chemicals or chemical products for sale throughout the United States. Its plants are located in Alabama, California, Georgia, Iilinois, Kentucky, Michigan, Ohio,

Oregon, Pennsylvania, Texas and Washington. Raw materials and ingredients destined for these plants, as well as the products which emanate from them, are purchased, distributed or sold in interstate commerce.

8. Olin Mathieson and Pennsalt compete in the production and sale of at least seven important chemicals: ammonia, calcium hypochlorite, caustic soda, chlorine, hydrofluoric acid, muriatic acid and sulfuric acid. In 1958 out of approximately $600,000,000 in sales of these chemicals throughout the United States, the combined sales of Olin Mathieson and Pennsalt exceeded $80,000,000 or 13%. Olin Mathieson's volume is greater than Pennsalt's on some of the competitive products and less on others. In 1959, Olin Mathieson's sales of these products approximated $60,000,000 while Pennsalt's were about $30,000,000.

9. Pennsalt produces, and both it and Olin Mathieson sell sodium chlorate, a chemical widely used for industrial, agricultural and defense purposes. Sodium chlorate, produced by the electrolysis of an acidified salt solution, is distributed and sold through channels of interstate commerce throughout the United States. The largest consumer of sodium chlorate is the pulp and paper industry which uses it increasingly in the bleaching of pulp for brighter, higher quality paper. For this purpose, almost 40% of the sodium chlorate produced in the United States is consumed in the generation of chlorine dioxide, a gas which possesses the unique ability to bleach cellulosic fibers to maximum whiteness with little or no loss of fiber strength. Large quantities [fol. d] of sodium chlorate also go into the manufacture of herbicides, the preparation of agents for the defoliation of cotton and soybeans, and the production of other important chlorates and perchlorates. The latter groups include potassium chlorate, a standard ingredient in the manufacture of matches, and ammonium perchlorate, an important chemical used as an oxidizer in solid propellant fuels for rockets and missiles. The rapidly increasing demand for ammonium perchlorate has made its production the second most significant use of sodium chlorate and is widely believed to offer the greatest growth potential for sodium chlorate consumption.

10. The sodium chlorate industry is highly concentrated: American Potash and Chemical Corporation, with plants

in Nevada and Mississippi, Hooker Chemical Corporation, with plants in Mississippi and at Niagara Falls, New York, and Pennsalt with a plant at Portland, Oregon, presently account for virtually all of the sodium chlorate produced in the United States. The same three producers, or companies owned by them, also account for all of the potassium chlorate and virtually all of the ammonium perchlorate produced here. In 1959, Pennsalt accounted for about 14% of the 88,300 tons of sodium chlorate, valued at approximately $14,500,000, produced in the United States. In 1960, as a result of the expansion of its Portland plant, Pennsalt's production has risen to approximately 18% of the country's total. Pennsalt's sales of sodium chlorate currently exceed 14,000 tons or $2,000,000 annually. The balance of its output is consumed in the manufacture of other products.

11. Olin Mathieson is Pennsalt's leading customer for sodium chlorate, currently buying at a rate exceeding 3,000 tons per year. Its purchases represented about 11% of Pennsalt's sodium chlorate sales in 1958, 12% in 1959 and 21% in the first six months of 1960. All of the Pennsalt sodium chlorate bought by Olin Mathieson is resold to oth-[fo]. e] ers. In addition, Olin Mathieson has been a substantial customer for sodium chlorate produced by Hooker Chemical Corporation. Olin Mathieson presently purchases, for use or resale, over 6% of all the sodium chlorate sold in the United States.

12. Olin Mathieson also occupies a leading position in the technology of sodium chlorate applications. Apart from research and production activities in solid propellant rocket fuels and the ownership of patents relating to the production of perchlorates, Olin Mathieson owns the patented Mathieson process, the most widely used system in the United States for generating chlorine dioxide from sodium chlorate for pulp and paper bleaching purposes. As of February 1960, Olin Mathieson's process was reported as being used in more than 20 of about 55 chlorine dioxide generation plants in North America.

13. On February 11, 1960, Olin Mathieson and Pennsalt entered into a joint venture agreement providing for the creation of Penn-Olin Chemical Company. The agreement provides that (a) each of the joint venturers is to own 50% of the stock of Penn-Olin; (b) Penn-Olin is to construct a

plant at Calvert City, Kentucky, with a capacity of 25,000 tons of sodium chlorate per year, expected to cost approximately $6,500,000, and to be located on land deeded by, and adjacent to existing facilities of Pennsalt; (c) Olin Mathieson will act as sales agent for Penn-Olin; and (d) Pennsalt and Olin Mathieson will disclose to Penn-Olin all technical and operating information relating to the operations or contemplated operations of Penn-Olin which either party possesses or may develop prior to December 31, 1964.

14. On February 25, 1960, Penn-Olin Chemical Company was incorporated under the laws of the State of Delaware. Penn-Olin is authorized to engage in the production, distribution and sale of chemicals and chemical compositions of [fol. f] any state, form, nature, mixture or description, including sodium chlorate, potassium chlorate and perchlorates. The raw materials for Penn-Olin's production are found in large part outside Kentucky, and Penn-Olin's chemical products are destined for distribution and sale to customers located in various states of the United States. Beginning at least in 1960, Olin Mathieson commenced soliciting customers and entering into contracts for the purchase or sale of sodium chlorate for the account of Penn-Olin.

15. Subsequent to the formation of Penn-Olin, the stock of the corporation, totaling 2,000 shares designated as common stock, was authorized to be issued in equal shares to Pennsalt and Olin Mathieson. In April 1960 one share each of said stock was issued to Pennsalt and Olin Mathieson. Thereafter, from time to time and continuing at least until March 1961, Pennsalt and Olin Mathieson each subscribed, paid for and acquired additional shares of stock in Penn-Olin. In addition, officers and directors of Penn-Olin have been appointed from among the personnel of Pennsalt and Olin Mathieson. Among such officers and directors are the General Manager of the Industrial Chemicals Division of Pennsalt, appointed to serve also as President and a director of Penn-Olin; and the Vice President and Associate General Manager of the Chemicals Division of Olin Mathieson, appointed to serve also as Vice President and a director of Penn-Olin.

16. (a) The effect of the concurrent acquisitions of part of the stock of Penn-Olin by Pennsalt and Olin Mathieson

may be substantially to lessen competition or to tend to create a monopoly in the production and sale throughout the United States or certain sections thereof of sodium chlorate and of such other chemical products sold in com- [fol. g] merce as are or may be manufactured by either defendant, in violation of Section 7 of the Clayton Act, as more fully described in paragraph 18.

(b) By the creation of Penn-Olin, Pennsalt and Olin Mathieson each acquired, directly or indirectly, part of the assets of the other. The effect of such acquisitions may be substantially to lessen competition or to tend to create a monopoly in the production and sale throughout the United States or certain sections thereof of sodium chlorate and of such other chemical products sold in commerce as are or may be manufactured by either defendant, in violation of Section 7 of the Clayton Act, as more fully described in paragraph 18.

17. (a) Beginning at least as early as December 1957, the exact date being unknown to the plaintiff, Pennsalt and Olin Mathieson have engaged in a combination and conspiracy in unreasonable restraint of trade and commerce in sodium chlorate and derivatives thereof in violation of Section 1 of the Sherman Act. The combination and conspiracy has consisted of a continuing agreement and concert of action to avoid and eliminate competition *inter sese* in the production and sale of sodium chlorate and derivatives thereof throughout the United States, the substantial terms of which have been and are that said defendants would (1) allocate markets for the sale of sodium chlorate and (2) refrain from establishing facilities for the production of sodium chlorate and derivatives thereof without consulting each other.

(b) The contract by which Pennsalt and Olin Mathieson undertook to establish Penn-Olin, and the combination in which defendants have pooled their respective resources, [fol. h] as described in paragraphs 13 through 15, are in unreasonable restraint of trade and commerce in the production and sale of sodium chlorate and of other chemicals or chemical products produced by either defendant, in violation of Section 1 of the Sherman Act.

V

Effects of Violations

18. The foregoing violations have had and may have the following effects, among others:

(a) Potential competition between Olin Mathieson and Pennsalt in the production of sodium chlorate has been eliminated;

(b) Actual and potential competition between Olin Mathieson and Pennsalt in the sale of sodium chlorate has been eliminated;

(c) Competition generally in the production and sale of sodium chlorate may be substantially lessened;

(d) Concentration in the sodium chlorate industry, and in the allied fields of chlorate and perchlorate chemicals, will be preserved and barriers to the entry of newcomers will be enhanced;

(e) Olin Mathieson will be eliminated as an independent customer for sodium chlorate manufactured by competitors of Pennsalt;

(f) Actual and potential competition between Olin Mathieson and Pennsalt in the production and sale of various chemicals and chemical products may be substantially lessened;

[fol. i] (g) Suppliers of Olin Mathieson and Pennsalt may be placed at a competitive disadvantage in attempting to furnish raw materials or ingredients which either Pennsalt or Olin Mathieson can sell to the other;

(h) Consumers will be denied the benefits of free and unrestricted competition in the production and sale of chemicals and chemical products generally;

(i) Competitors in the chemical industry and in other industries may be encouraged to participate in joint ventures as a means of avoiding, lessening, restraining or suppressing competition *inter sese*.

19. The violations alleged in the foregoing paragraphs, as well as the effects of those violations, are continuing and will continue unless the relief prayed for in this complaint is granted.

Prayer

Wherefore, plaintiff prays:

1. That Olin Mathieson, Pennsalt and Penn-Olin be adjudged to have violated Section 7 of the Clayton Act.

2. That Olin Mathieson, Pennsalt and Penn-Olin be adjudged to have violated Section 1 of the Sherman Act.

3. That the contract, combination, conspiracy and joint venture of Pennsalt and Olin Mathieson be dissolved under such terms and conditions as the Court may direct and that Pennsalt and Olin Mathieson each be enjoined and restrained from acquiring any ownership, interest in, or distributing any substantial portion of the sodium chlorate of, any other company engaged in the production of sodium chlorate in the United States.

4. That defendants and all persons acting on their behalf be enjoined and restrained from taking any action in furtherance of the joint venture or the agreement of February 11, 1960.

[fol. j] 5. That Pennsalt and Olin Mathieson, and all persons acting on their behalf, be enjoined and restrained from entering into or continuing any joint venture agreement, arrangement or understanding with each other, except with the approval of the Court.

6. That a preliminary injunction issue against defendants, their representatives and agents, to prevent and restrain them from proceeding jointly with the construction or operation of Penn-Olin's plant and facilities, or with the carrying out of any other provisions of their agreement, pending final adjudication of the merits of this complaint.

7. That pursuant to Sections 12 and 15 of the Clayton Act orders be made and entered requiring Olin Mathieson and Pennsalt to be brought before the Court in this proceeding and directing the Marshals of the Southern District of

New York and the Eastern District of Pennsylvania respectively to serve summons upon those defendants.

8. That the plaintiff have such other and further relief as this Court may deem just and proper.

9. That the plaintiff recover the costs of this suit.

Certificate

This is to certify that the foregoing Amended Complaint sets forth the Complaint filed herein on January 6, 1961, as amended pursuant to order of the Court entered July 17, 1961 granting Plaintiff's Application Under Rule 15(a) For Leave to Amend Complaint.

/s/ Daniel J. Freed, /s/ Edward A. Copley, Attorneys, Department of Justice.

[fol. k] [File endorsement omitted.]

[fol. l] In United States District Court for the District of Delaware

Civil Action No. 2282

Answer to Amended Complaint—Filed September 5, 1961

Defendant Olin Mathieson Chemical Corporation, for its answer to the amended complaint herein:

1. Denies each and every averment of paragraph 1 thereof, except that the complaint purports to be filed and the action purports to be instituted under the statutes referred to and for the purposes stated.

2. States that it is without knowledge or information sufficient to form a belief as to the truth of each and every averment of the first and fourth sentences of paragraph 6 thereof, except that it is a producer of chemicals and other products and produces a variety of chemicals and chemical products in plants in 15 states.

3. States that it is without knowledge or information sufficient to form a belief as to the truth of each and every averment of paragraph 7 thereof, except that Pennsalt manufactures chemicals and chemical products and has a plant in Kentucky and a plant in Oregon.

4. States that it is without knowledge or information sufficient to form a belief as to the truth of each and every averment of paragraph 8 thereof, except that Pennsalt and Olin Mathieson produce and sell ammonia, calcium hypo- [fol. m] chlorite, caustic soda, chlorine, hydrofluoric acid, muriatic acid and sulfuric acid, and that in 1959 Olin Mathieson's aggregate sales of those products approximated $60,000,000.

5. States that it is without knowledge or information sufficient to form a belief as to the truth of each and every averment of paragraph 9 thereof, except that Pennsalt produces and Pennsalt and Olin Mathieson sell sodium chlorate, that some sodium chlorate has been used for industrial and agricultural purposes, that sodium chlorate can be produced by electrolysis of a acidified salt solution, that some sodium chlorate has been distributed and sold through channels of interstate commerce, that some sodium chlorate has been consumed by the pulp and paper industry in the bleaching of pulp for paper, that some sodium chlorate has been consumed in the generation of chlorine dioxide (a gas which can bleach celluiosic fibers), that some sodium chlorate has gone into the manufacture of some herbicides, the preparation of some agents for the defoliation of cotton and soybeans and the production of some other chlorates and perchlorates (including potassium chlorate, which can be used as an ingredient in the manufacture of matches, and ammonium perchlorate, which can be used as an oxidizer in solid propellant fuels for rockets and missiles).

6. States that it is without knowledge or information sufficient to form a belief as to the truth of each and every averment of paragraph 10 thereof, except that the three corporations referred to have plants in the cities and states named and account for a large part of the sodium chlorate produced in the United States.

[fol. n] 7. States that it is without knowledge or information sufficient to form a belief as to the truth of each and

every averment of paragraph 11, except that it has purchased sodium chlorate from Pennsalt and from Hooker Chemical Corporation, that in 1960 it purchased more than 3,000 tons of sodium chlorate from Pennsalt and that it has resold substantially all of the sodium chlorate it has purchased from Pennsalt.

8. States that it is without knowledge or information sufficient to form a belief as to the truth of each and every averment of paragraph 12 thereof, except that it has certain patents relating to the production of perchlorates, that it has developed a process for generating chlorine dioxide from sodium chlorate for pulp and paper bleaching purposes and that, as of February of 1960, that process was being used to generate chlorine dioxide in plants in North America.

9. Denies each and every averment of paragraph 13 thereof, except admits that it and Pennsalt entered into a letter agreement dated February 11, 1960; defendant respectfully refers the Court to said letter for the contents thereof.

10. Denies each and every averment of the second and fourth sentences of paragraph 14 thereof, except admits that Penn-Olin is authorized to engage in the production, distribution and sale of sodium chlorate and that in 1960 Olin Mathieson entered into contracts for the purchase of and solicited customers for the sale of sodium chlorate.

11. Denies each and every averment of the first, second, third and fifth sentences of paragraph 15 thereof, except admits that in March 1960 Penn-Olin issued to [fol. 9] Pennsalt and Olin Mathieson one share of common stock each and that among the officers and directors of Penn-Olin are the General Manager of the Industrial Chemicals Division of Pennsalt, appointed to serve also as President and a director of Penn-Olin, and the Vice President and General Manager of the Chemicals Division of Olin Mathieson, appointed to serve also as Vice President and a director of Penn-Olin.

12. Denies each and every averment of paragraphs 16 and each of its subdivisions, 17 and each of its subdivisions, 18 and each of its subdivisions and 19 thereof.

Wherefore, defendant Olin Mathieson Chemical Corporation demands judgment dismissing the amended complaint herein.

September 5, 1961.

Berl Potter & Anderson, by Wm. S. Potter, a member of said firm, Attorneys for defendant Olin Mathieson Chemical Corporation, Delaware Trust Building, Wilmington 1, Delaware.

Cravath, Swaine & Moore, 15 Broad Street, New York 5, New York. Of Counsel.

[fol. p] Acknowledgments of service (omitted in printing.)

[File endorsement omitted.]

[fol. q] IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

[Title omitted]

ANSWER OF DEFENDANT PENN-OLIN CHEMICAL COMPANY TO PLAINTIFF'S AMENDED COMPLAINT—Filed September 6, 1961

Defendant Penn-Olin Chemical Company makes the following answer to plaintiff's amended complaint:

1. Penn-Olin denies that it has violated section 7 of the Clayton Act, 15 U.S.C. section 18 or section 1 of the Sherman Act, 15 U.S.C. section 1.

2, 3, 4, 5. Admitted.

6, 7, 8, 9, 10, 11, 12. The allegations contained in paragraphs 6 through 12 of the amended complaint do not relate to Penn-Olin.

13. Penn-Olin admits that on February 11, 1960 Olin Mathieson Chemical Corporation and Pennsalt Chemicals

Corporation entered into a joint venture agreement, which agreement speaks for itself.

14. Penn-Olin admits the allegations contained in the first and second sentences of paragraph 14 of the amended complaint. The allegations contained in the third sentence of paragraph 14 are denied as stated. Penn-Olin alleges that it is intended that Penn-Olin will only produce sodium chlorate, which will be sold principally in the Southeastern United States. Penn-Olin admits that in 1960 Olin Mathieson entered into contracts for the purchase of, and solicited customers for the sale of, sodium chlorate.

[fol. r] 15. Penn-Olin admits that in April 1960 one share of the common stock of Penn-Olin was issued to Pennsalt and one share to Olin Mathieson; that the officers and directors of Penn-Olin include the General Manager of the Industrial Chemicals Division East of Pennsalt, appointed to serve also as President and a director of Penn-Olin, and the Vice President and General Manager of the Chemicals Division of Olin Mathieson, appointed to serve also as Vice President and a director of Penn-Olin. The remaining allegations of paragraph 15 of the amended complaint are denied.

16, 17, 18, 19. Denied.

Berl, Potter & Anderson, By Wm. S. Potter, Attorney for Defendant, Penn-Olin Chemical Company.

[fol. s] Acknowledgment of service (omitted in printing.)

[File endorsement omitted.]

[fol. t] IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

[Title omitted]

ANSWER OF DEFENDANT PENNSALT CHEMICALS CORPORATION TO PLAINTIFF'S AMENDED COMPLAINT—Filed September 6, 1961.

Defendant Pennsalt Chemicals Corporation makes the following answer to the amended complaint:

1. Pennsalt denies that it has violated section 7 of the Clayton Act, 15 U.S.C. section 18 or section 1 of the Sherman Act, 15 U.S.C. section 1.

2, 3, 4. Admitted.

5, 6. The allegations contained in paragraphs 5 and 6 of the amended complaint do not relate to Pennsalt.

7. Admitted.

8. Pennsalt admits that Olin Mathieson Chemical Corporation and Pennsalt produce and sell the seven chemicals set forth in paragraph 8 of the complaint and that Pennsalt's sales of these seven chemicals in 1958 approximated $29,000,000 and in 1959 approximated $31,000,000. Pennsalt is without knowledge or information sufficient to form a belief as to the truth of the remaining allegations contained in paragraph 8 of the amended complaint.

9. Pennsalt admits the allegations contained in the first sentence of paragraph 9 of the amended complaint. Penn- [fol. u] salt admits that sodium chlorate is produced by the electrolysis of an acidified salt solution; that sodium chlorate is distributed and sold through channels of interstate commerce in several markets in the United States; that the pulp and paper industry is a large consumer of sodium chlorate; that the pulp and paper industry uses sodium chlorate in the bleaching of pulp for brighter, higher quality paper; that sodium chlorate is also used in the manufacture of herbicides, the preparation of agents for defoliation of cotton and soy beans and the production of certain chlorates and perchlorates, including potassium

chlorate and ammonium perchlorate; that potassium chlorate is used in the manufacture of matches; and that ammonium perchlorate is used as an oxidizer in solid propellant fuels for rockets and missiles. Pennsalt is without knowledge or information sufficient to form a belief as to the truth of the remaining allegations contained in paragraph 9 of the amended complaint.

10. Pennsalt admits that American Potash and Chemical Corporation produces sodium chlorate in Nevada and Mississippi; that Hooker Chemical Corporation produces sodium chlorate in Mississippi and at Niagara Falls, New York; that Pennsalt produces sodium chlorate at Portland, Oregon; that American Potash, Hooker and Pennsalt produce sodium chlorate and potassium chlorate; that American Potash and Pennsalt produce ammonium perchlorate; that Pennsalt produced at its plant in Portland, Oregon, about 12,384 tons of sodium chlorate in 1959 and about 16,529 tons in 1960; that Pennsalt's sales of sodium chlorate in 1960 were 15,559 tons or about $2,394,200; and that [fol. v] the balance of Pennsalt's output of sodium chlorate is consumed in the manufacture of other products. Pennsalt is without knowledge or information sufficient to form a belief as to the truth of the remaining allegations contained in paragraph 10 of the amended complaint.

11. Pennsalt admits that Olin Mathieson purchased 3,203 tons of sodium chlorate from Pennsalt in 1960. Pennsalt admits the allegations contained in the second sentence of paragraph 11 of the amended complaint. Pennsalt is without knowledge or information sufficient to form a belief as to the truth of the remaining allegations contained in paragraph 11 of the amended complaint.

12. The allegations contained in paragraph 12 of the amended complaint do not relate to Pennsalt.

13. Pennsalt admits that on February 11, 1960 Olin Mathieson and Pennsalt entered into a joint venture agreement, which agreement speaks for itself.

14. Pennsalt admits the allegations contained in the first and second sentences of paragraph 14 of the amended complaint. The allegations contained in the third sentence of paragraph 14 of the amended complaint are denied as stated. Pennsalt alleges that it is intended that Penn-Olin Chemical Company will only produce sodium

chlorate, which will be sold principally in the Southeastern United States. The allegations contained in the fourth sentence of paragraph 14 of the amended complaint do not relate to Pennsalt.

15. Pennsalt admits that in April 1960 one share of the common stock of Penn-Olin was issued to Pennsalt and one share to Olin Mathieson; that the officers and directors of Penn-Olin include the General Manager of the Industrial Chemicals Division East of Pennsalt, appointed to serve [fol. w] also as President and a director of Penn-Olin, and the Vice President and General Manager of the Chemicals Division of Olin Mathieson, appointed to serve also as Vice President and a director of Penn-Olin. The remaining allegations of paragraph 15 of the amended complaint are denied.

16, 17, 18, 19. Denied.

Berl, Potter & Anderson, By Wm. S. Potter, Attorney for Defendant, Pennsalt Chemicals Corporation.

Barnes, Dechert, Price, Myers & Rhoads, By H. Francis DeLone, Of Counsel.

[fol. x] Acknowledgment of service (omitted in printing.)

[File endorsement omitted.]

[fols. 1-4] IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

C. A. No. 2282

UNITED STATES OF AMERICA, Plaintiff,

v.

PENN-OLIN CHEMICAL COMPANY, OLIN-MATHIESON CHEMICAL CORPORATION AND PENNSALT CHEMICALS CORPORATION, Defendants.

Transcript of trial hearings—October 30-November 22, 1961

Wilmington, Delaware, October 30, 1961.

Before: Hon. Edwin D. Steel, Jr., U.S. District Court Judge.

APPEARANCES:

For the Plaintiff: Alexander Greenfeld, Esq., U.S. District Attorney; Daniel J. Freed, Esq., and Edward A. Copley, Esq., of Department of Justice, Washington, D.C.

For all Defendants: William S. Potter, Esq., of Berl, Potter & Anderson.

For Defendant Pennsalt Chemicals Corp: H. Francis De Lone, Esq. & John T. Subak, Esq., of Barnes, Dechert, Price, Myers and Rhoads, of Philadelphia, Pa.

For Defendant Olin-Mathieson Chemical Corp.: Albert R. Connelly, Esq., & John Barnum, Esq., of Cravath, Swaine and Moore, of New York, N.Y.

. . . . . .

[fol. 5] STATEMENT OF MR. FREED

Mr. Freed: May it please the Court the United States brings to trial this morning an antitrust suit under Section 1 of the Sherman Act, and Section 7 of the Clayton Act, against Olin-Mathieson Chemical Corporation, Pennsalt Chemical Corporation, and their joint creation, Penn-Olin Chemical Company.

This case involves an agreement not to compete between

Olin and Pennsalt, and it involves a combination, namely, Penn-Olin Chemical Company, created by Olin and Pennsalt, to achieve that agreement.

In terms of chronology, the case may be divided into two parts. The first is a case under section 1 of the Sherman Act, dating back at least to 1957, which charges that Olin and Pennsalt entered into an agreement not to compete in sodium chlorate. The second part of the case begins in 1960. It is brought under both Section 1 and Section 7, and charges that the joint venture entered into on February 1, 1960 violates the antitrust laws in two different but related respects. One respect concerns sodium chlorate and its derivatives, the same subject which was covered by the 1957 agreement.

The second part deals with non-chlorate chemicals, and by non-chlorate chemicals the Government refers to those [fol. 6] products in which Pennsalt and Olin were vigorous, active competitors, in production and sale, prior to the creation of Penn-Olin Chemical Company.

The distinction between the non-chlorate chemicals and sodium chlorate is that prior to 1960 Pennsalt was a manufacturer and seller of sodium chlorate; Olin was only a seller. Prior to 1960 and continuing to the present time, Pennsalt and Olin competed to the extent of many millions of dollars in the sale of basic industrial chemicals, such as chlorine, caustic soda, ammonia, hydrofluoric acid and calcium hydrofluoric.

The charges which relate to the 1960 joint venture agreement are made under both Section 1 of the Sherman Act and Section 7 of the Clayton Act. They both deal with both chlorate and non-chlorate chemicals. The only difference which we urge for the Court's consideration between the attack on the joint venture under Section 1 and the attack under Section 7 is that the Clayton Act, being a statute designed to halt in their incipiciency combinations among competitors, imposes a lesser burden of proof on the Government.

The Government believes that the evidence which it will offer is adequate to establish violations of Section 1. [fol. 7] The Section 7 count is added because we believe that that statute is a fortiori violated. To whatever extent the proof does not meet the standards of Section 1,

we believe that a lesser burden is imposed upon the Government if the formal requirements of Section 7 are satisfied.

The presentation of the case for the United States will basically portray the anatomy of a joint venture. It is the Government's intention to trace back to its origin the creation of Penn-Olin Chemical Company by establishing the activity and the interest and the capability of Pennsalt and of Olin to have entered the sodium chlorate business independently, each by itself.

After establishing the interest and ability of each defendant individually to have engaged in this business, the Government will then demonstrate the manner in which the two combined, in which they agreed not to compete and in which they formed a joint venture as a means of consummating their non-competing agreement insofar as sodium chlorate is concerned.

[fol. 8] The evidence which the Government will introduce or offer for the Court's consideration may be divided into three categories as follows: One portion of our evidence will be designed to show that Pennsalt and Olin were each fully capable of competing by themselves.

Secondly, the same evidence, and perhaps additional evidence, will demonstrate that there were no barriers of technology, of capital, of political or other considerations, which foreclosed independent entry into the sodium chlorate business by a major industrial chemical company.

And, finally, we will show that the joint venture was entered into as a result of consideration by each company over a period of years of the alternatives, Shall we go it alone? Shall we go it together? Implicit, of course, there was always the possibility that each company might on its own, apart from combination, decide not to enter the business at all. With respect to the latter alternative we believe that the evidence will show that neither company had abandoned consideration of entry into sodium chlorate production prior to the time that the joint venture was agreed upon.

It is the Government's view as a matter of law that when substantial competitors in an industry are faced, or choose to face the alternatives of combination or competition, that that choice is an impermissible choice under the anti-
[fol. 9] trust clause, that combinations in restraint of trade

are unlawful, and that a company which is able to compete may not as an alternative choose not to compete.

I would like to state a few words about the nature of the sodium chlorate industry——

The Court: You would place some limitation on that last sentence. Every company which is capable of competing is not under Government compulsion to go into business. You simply say if they are going to go into business they must go into it competitively and not in a non-competitive manner?

Mr. Freed: Your Honor has correctly stated our position. And, further, on your Honor's point I might say that the Government does not take the position that the combination of any two companies to manufacture any product is per se unlawful or is on its face unreasonable and subject to challenge. Our concern in this case is with the choice which faced two companies which were substantial competitors in other chemical products and, in addition, substantial competitors in the desire and intention and ability to enter the particular business of Penn-Olin Chemical Company, sodium chlorate.

The sodium chlorate industry today has three producers, Pennsalt has been a producer and seller of sodium chlorate out of its plant in Portland, Oregon, since 1941. [fol. 10] Hooker Chemical Corporation acquired in the early fifties the Oldbury Electric Chemical Company, which at that time was engaged in the business of producing and selling sodium chlorate. So that today Hooker is the second company in the business. It is, I believe, the largest company in the business and it has expanded the facilities which it acquired by acquisition or merger from Oldbury.

The third company in the industry today is American Potash & Chemical Corporation. American Potash entered the sodium chlorate field in the middle fifties by acquiring Western Electrochemical Company. Prior to the institution of this lawsuit Pennsalt's only plant was in Portland, Oregon. Hooker's plants, acquired from Oldbury, were in Niagara Falls, New York, and Columbus, Mississippi. American Potash, at the time it acquired Western Electrochemical Company, acquired sodium chlorate productive facilities in Henderson, Nevada.

In 1958, American Potash by itself established a new

productive facility at Aberdeen, Mississippi. This was apparently the first new plant in the sodium chlorate industry in the decade of the fifties.

The joint venture agreement between the defendants Pennsalt and Olin was entered into in 1960, for the purpose of establishig a sodium chlorate productive facility in Calvert City, Kentucky. The plants of Hooker and American [fol. 11] Potash in Mississippi and of Penn-Olin in Kentucky represent productive facilities in the Southern or Southeastern portion of the United States. That area now has three plants. Hooker has one up in New York, American Potash in Nevada, and Pennsalt in Oregon.

Subsequent to the initiation of this lawsuit, Pittsburgh Plate Glass Company has announced that it will build a plant in Lake Charles, Louisiana, by itself.

Also subsequent to the initiation of this lawsuit, which occurred on January 6, 1961, with the filing of the Government's complaint, a fifth company, Pacific Engineering & Production Company, announced that it would construct sodium chlorate facilities in Henderson, Nevada. Pacific Engineering made that announcement as an independent company, without any indication of a joint venture.

The uses of sodium chlorate fall into several categories. The largest use which has grown very measurably in the decade of the fifties and continues to have a very bright outlook is for the bleaching of pulp and paper to maximum whiteness by a process which in contrast with previous bleaching processes does not materially impair the strength of the fiber as the bleaching takes place. It is therefore a method by which very bright pulp and paper can be made for industrial and commercial purposes without sacrificing the strength of the product.

[fol. 12] There are also substantial uses of sodium chlorate in the agricultural-chemical field, where it is used as a herbicide and for the purpose of defoliating cotton and soy beans.

Another use of sodium chlorate is in weed killing by railroads along their right-of-way.

A somewhat growing use is for uranium milling. This use takes place principally in the inter-mountain area in the west, or on the border between east and west, where the chemical is used to process uranium ores.

Finally, there are two principal derivatives of sodium chlorate. One, which is very old, is in the preparation from sodium chlorate of potassium chlorate, an essential ingredient in the making of matches. This use, while large, is stable. It is not an increasing or a decreasing use.

The remaining application of sodium chlorate is related directly to the nation's defense effort. Sodium chlorate, through a chemical process, is converted into ammonium perchlorate, used as an oxidizer in preparing solid propellant missile fuels. With the increase in the missile program, preparation for flights to the moon, it is possible [fol. 13] that in the years to come the demand for ammonium perchlorate will soar.

At the present time, Pennsalt, Hooker, American Potash and Pacific Engineering, are all engaged in the making of ammonium perchlorate. American Potash, Hooker and Pennsalt also make potassium chlorate.

The technology by which sodium chlorate is produced may be important to consider in any case where companies combine for the purpose of making a new product. The Government recognizes that in an age where the scientific barriers are being broken and where industrial genius is attempting to further push back the bounds of the unknown, it may sometimes be necessary for the research and development facilities, and for the capital investment of small individual companies, to be pooled in order to create new products that will benefit society and that will be useful in the public interest, and that perhaps may never come about without a partnership of capital and technology.

The evidence to be offered by the Government will indicate that sodium chlorate does not fall into this category. Substantial production of sodium chlorate goes back at least thirty years. A number of different companies have at one time or another been producers in this field.

The process by which sodium chlorate is produced. [fol. 14] is an electrochemical process, principally involving the electrolysis of salt in solution. The manufacture of chlorine and caustic soda, which are two of the fundamental industrial chemicals used by industry today, is an electrochemical process, and the relationship between the electrolysis of salt to produce those chemicals and

the electrolytic process by which sodium chlorate is produced is a close one.

The same general technical knowledge is applicable to both.

For many years many companies have, as I have stated, made sodium chlorate at one time or another. In addition to American producers, sodium chlorate has been produced abroad, and while imports have no significant application to this case, the importation of technology may.

There are a number of companies in Europe which have made known in the industry their availability to sell sodium chlorate production technology and know-how, to build plants, to give the benefits of their chemical experience with this product. For any new company to enter the sodium chlorate business, then, there are basically two alternatives. It may develop a process of its own, on the basis of prior experience in the electrochemical field, or it may acquire some know-how in technology from a com- [fols. 15-43] pany which has it available. The Government's evidence will indicate that technology in this case was available abroad and was sought by Olin prior to its decision to embark on the joint venture.

One of the advantages in not buying technology, in not merging with an already existing sodium chlorate producer, is an advantage which is inherent in our competitive system. Any company which seeks by itself to make a product which has been made before will always undertake to find newer and better ways to increase quality, to lower price, or to lower costs and increase profits. This case involves such attempts by Olin to achieve improved methods of producing sodium chlorate. These methods were cut short by Olin's entry into the joint venture agreement with Pennsalt. Pennsalt already had an established proven process for making sodium chlorate. It was therefore not necessary for Olin to continue with its own research and development efforts, and the Government will show evidence to indicate that what appeared to be a promising conquest of sodium chlorate technological problems was in hand, or in the forseeable future, at the time that Olin made its decision to drop its own production methods and go into a partnership with Pennsalt.

* * * * * * *

[fols. 44-128] Mr. Freed: I believe, your Honor, that the record will show that the Penn-Olin plant at Calvert City was constructed solely to produce sodium chlorate, and to the Government's knowledge there have been no further plans for expansion or new products reached at this time, and in this respect we call the Court's attention to the fact that the Government's inquiry concerning the joint venture came less than a month after the joint venture was created, and there has been no indication that products other than sodium chlorate, except for derivatives, have been the subject of decision or discussion.

[fol. 129] Wednesday, November 1, 1961, 10 o'clock a. m.

PRESENT:

For the Plaintiff: Daniel J. Freed, Esq., and Edward A. Copley, Esq.

For Defendant Pennsalt Chemicals Corp.: John T. Subak, Esq.

For Defendant Olin-Mathieson Chemical Corp.: John Barnum, Esq.

(The following occurred before the Clerk and the Court Reporter without the Court being present:)

OFFERS IN EVIDENCE OF PLAINTIFF'S EXHIBITS NOS. 1 THROUGH 414 (HEREINAFTER LISTED) AND COLLOQUY THEREON

Mr. Freed: Pursuant to order of the Court on the first day of trial, Monday, October 30, the Government this morning will offer into evidence the documentary portion of its case. Our submission includes documents culled from the files of the defendants, documents previously designated as exhibits to depositions, and documents tabulating data received from the defendants or third parties and not requiring live witness identification.

On Monday morning, November 6, plaintiff will offer into evidence its deposition evidence, interrogatory evidence, and stipulation evidence.

[fol. 130] On Monday afternoon plaintiff will commence

submission of the balance of its evidence through live witnesses.

In order to expedite this morning's proceedings, plaintiff has, at the suggestion of Mr. Pollard, marked each of the documents to be offered with the exhibit number, the Civil Action number, and today's date. The first exhibit is marked: "PX-1, C.A. 2282, 11-1-61". Approximately 400 exhibits are being offered.

We have also prepared a list describing these documents so that by simply recording this information into the transcript of this morning's hearing the Reporter will be able to make an accurate record of every exhibit which has been offered. Our list sets forth the following information: PX number; description of document; date of document; and deposition exhibit number, if any. For example, the list indicates that the following information should be recorded in the transcript for the plaintiff's second exhibit: "Plaintiff's Trial Exhibit PX-2, Northgraves to Wojcik, 5-8-56, Wojcik Deposition Exhibit 1".

Mr. Pollard, I believe that if the procedure I have outlined is in accordance with your suggestion and meets with your approval, the reception of plaintiff's exhibits in evidence, subject to later objections, if any, by defendants in their briefs, can be completed with initialing of each [fol. 131] exhibit by the Clerk.

Mr. Subak: I understand that defendants are thus free at a later date to make whatever objection, other than authenticity, they may wish to make. I did not understand that that objection was to appear in defendants' brief or briefs but would be in writing.

Mr. Freed: About all I can say as to objections is that the Court made a ruling on Monday, and I don't think that any of us here today can alter the Court's ruling or the Court's intent. I only know that today's hearing was designed only to offer exhibits into evidence, subject to later objection.

Mr. Subak: Subject to our review of the transcript, we do propose at a later date to make such objections as we may wish. We will do it in writing.

Mr. Barnum: Is it your suggestion that there is in the transcript of Monday's proceedings a reference by the Court

to the connection of objections to the documents and the brief which defendants are to file?

Mr. Freed: As I stated to Mr. Subak, I do not intend to in any way alter what Monday's transcript shows respecting the manner in which defendants may make their objections. The only purpose of this morning's hearing is to offer these exhibits into evidence, subject to later objec-
[fol. 132] tion by defendants.

Mr. Barnum: That is understood. I simply wish to call to your attention the fact that in your statement of what you believed to be the Court's ruling on Monday you said that defendants would object to documents in their briefs, an I do not understand that to have been the Court's ruling on Monday.

Mr. Freed: I think that does reflect our understanding of the Court's ruling, but certainly the transcript of the record will be the best evidence, and we do not intend to bind you to our interpretation of that by our following the procedure which I have outlined this morning.

Mr. Barnum: Would you cite to us that part of the transcript of the proceedings on Monday which connects defendants' objection to documents and defendants' brief?

Mr. Freed: Mr. Barnum, if you wish to take a recess we can discuss this——

Mr. Barnum: I think it is important.

Mr. Freed: I don't believe it is pertinent to this morning's proceedings.

Mr. Barnum: Not pertinent to this morning's proceedings but certainly it should be decided today when we should make these objections if it is your contention that they should be made at the same time as the defendants file
[fol. 133] their brief, which is of course Monday.

Mr. Freed: I am sorry. Excuse me. I did not by reference to "brief" have any reference to the trial brief which defendants are required to file on Monday. It was our understanding that the Court ruled that objections to evidence will be discussed in the post-trial briefs of the parties, not the brief submitted before trial, or, in the case of defendants, by next Monday.

Mr. Barnum: I then agree that this is not a subject which we need discuss right now.

(Discussion off the record.)

Mr. Freed: With the clarification in the record that plaintiff does not understand that defendants need make their objections in the brief by Monday, November 6th, plaintiff would now tender to the Reporter its list of the documents and tender to Mr. Pollard the entire set of documents so that as soon as this formal part of the hearing is recessed the initialing of documents and the transcription of documents and the examination of documents by the defendants may proceed.

(Discussion off the record.)

Mr. Freed: Mr. Pollard, I would like to have leave at the end of today's marking session to appear again before you and the Reporter and seek permission to remove from the Clerk's custody certain numbered exhibits which I [fol. 134] will read into the record in order that the plaintiff may have an opportunity to make copies of these documents. The purpose of this request would be to enable us to have copies of documents as to which we are submitting into evidence our only copy. Government counsel undertakes to return each exhibit which it will read off to the Reporter this afternoon to the Clerk's custody on Monday morning.

Would that be satisfactory, sir?

The Clerk: I assume the defendants have no objection to that?

Mr. Subak: I have none.

The Clerk: I shall discuss it with Judge Steel, who is the only person who could permit the withdrawal. I am quite sure if counsel acquiesce he will permit this withdrawal, and I will see that you get them.

(Further discussion off the record.)

Mr. Freed: Before we recess I would like to record an additional observation concerning the physical characteristics of the evidence being offered this morning.

In a number of instances the documents, virtually all of which are photostats or copies of defendants' original documents, contain or did contain red markings or other notations made by Government counsel. We have attempted in our offer this morning to remove all such markings. In [fol. 135] some instances we have met with only mixed suc-

cess. The markings were made at a time when it was understood that original documents or clean copies would be furnished by the defendants for trial. In a number of cases the Government has not been able to notify defendants or defendants have not been able to furnish such clean copies by this morning's hearing. In fairness to the defendants we believe that they should have the right to offer in substitution originals or clean copies for exhibits on which spurious markings appear.

It is therefore my suggestion, Mr. Pollard, that the defendants be accorded the privilege of substituting original documents or clean copies of documents upon prior notice to the Government or advance submission of the proposed substitute to the Government so that we will know which if any exhibits being offered today are being replaced.

Mr. Subak: Mr. Freed, as you know, we have given to you a large number of these clean copies at your request. We will review the documents which you are now proposing to put into evidence, and in those instances where we think that markings on them should not appear we will try and substitute clean copies.

The Clerk: Of course, any substitution will naturally be under the control of the Court again, and I am sure that with the acquiescence of counsel the Court will [fol. 136] permit the substitution of clean copies for less legible copies, or whatever they are.

Mr. Freed: One final remark. The parties are in the process this morning, and perhaps during the major part of today, of discussing certain statistical exhibits and stipulations. At the conclusion of our discussion it is the Government's intention to offer either stipulated exhibits or underlying data in the event stipulations do not materialize. Whether those offerings of documents which relate to stipulations take place this afternoon or Monday will depend upon the negotiations of the parties, but I would like the record to be clear that as to a small number of matters documents are not being offered this morning in the expectation that stipulations respecting them can be reached by the parties between now and the convening of our marking session on Monday morning.

I believe with that statement the record at this point may record the list of documents which is now in the process of being corrected by defense counsel so that the statement that goes to the Reporter will represent an agreed list of exhibits.

Mr. Barnum: Defense counsel's corrections at this time are restricted simply to clarifying the descriptions already offered and making corrections in the spellings of names. [fol. 137] It is not in any respect a correction of the list proffered by plaintiff on the basis of a comparison of the description with the document itself.

Mr. Freed: But it is our understanding, Mr. Barnum, that such a comparison between the list of documents which you are now reviewing and the documents themselves will take place this morning and this afternoon so that when the Reporter receives this list for incorporation into the record it will reflect a matching of the document itself against the description on the list. Is that correct?

Mr. Barnum: Since the Reporter is receiving it now, it will, when he receives it, not reflect such a matching. But it is understood that such a matching will take place today.

Mr. Freed: Then perhaps I should amend my statement to reflect that the list will be delivered to the Reporter when the defendants have had an opportunity to check it against the physical documents themselves.

[fol. 138]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
1	Electrochemical Survey H-35 501	7-18-55	
2	Northgraves to Wojcik	5- 8-56	Wojcik 1
3	Hopkinson to Stein	7- 5-56	Stein 5
4	Logan to Hopkinson	7-18-56	Stein 8
5	Stein to Hopkinson	7-10-56	Stein 6
6	Hopkinson to Logan	7-13-56	Stein 7
7	Electochemical Survey H-35 502	7-26-56	Gardiner 3
8	Electrochemical Survey H-35 503	10-12-56	
9	Wojcik to Logan	11-20-56	
10	Market Research Report (Hayes)	12-56	
11	Electrochemical Survey H-35 504	3- 1-57	
12	Electrochemical Survey H-35 505	2-26-57	
13	Electrochemical Survey H-35 506	3- 6-57	
14	Logan to Wojcik	2-19-58	
14-A	Schiessl to Logan	3-27-58	
15	Whither Report	4- 4-58	Osborne 3 (Includes Hopkinson 1)
16	Engineering Survey H-35 701	4-29-58	

[fol. 139]

17	Gardiner to Wojcik	6-27-58	
18	Wojcik to Gardiner	7- 2-58	
19	Wojcik to Fodor	7- 2-58	
20	Olin Division Management Meeting	7-28-58	Wojcik 3
21	Collisson to Block	8- 4-58	
22	Harshman to Wojcik	8-19-58	
23	Fodor to Gardiner	10- 3-58	
24	Gardiner to Baker	11-12-58	
25	Electrochemical Survey H-35 507	12-11-58	
26	Wojcik to Collisson	1- 2-59	
27	Electrochemical Survey H-35 508	1- 9-59	
28	Sodium chlorate—Vickers-Krebs Gardiner memo)	2-11-59	
29	Wocik to Gardiner	2-16-59	
30	Newell to Logan	2-17-59	
31	Electrochemical Survey H-35 509	2-25-59	
32	Whither report	4-10-59	Osborne 1
33	Electrochemical Survey H-35 510	4-17-59	
34	Bellows to Osborne	4-23-59	Williamson 1
35	Nicolaisen to Spence	4-23-59	

[fol. 140]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
36	Olin Division Management Meeting Minutes	4-27-59	
37	Theobald to Frazier	5- 1-59	
38	Thoman to Nicolaisen	5-22-59	
39	Electrochemical Survey U-2.501	7-15-59	
40	Frazier to King	7-27-59	
41	King to Logan	7-28-59	
42	Northgraves to Chalfant	8- 7-59	
43	Logan to King	8-12-59	
44	Olin Division Management Meeting Minutes	8-17-59	
45	Wojcik to Block	8-18-59	
46	Olin Division Management Meeting Minutes	8-31-59	
47	Stein to Burdeshaw	8-31-59	Stein 4
48	Thoman to Wojcik	9- 4-59	
49	Wojcik to Thoman	10- 5-59	
50	Thoman to Wojcik	10-26-59	
51	Wojcik to Thoman	11- 9-59	
52	Spence to Wojcik	11-10-59	
53	Nicolaisen to Wojcik	11-25-59	
54	Spence to Wojcik	1-14-60	
55	Wojcik to Spence	1-26-60	

[fol. 141]

56	Electrochemical Survey U-2.502	4-27-60	Gardiner 1
57	Whither Report	7-60	Osborne 2 and Hopkinson 8
58	Drake to Logan	5-22-53	
59	Logan to Drake	5-25-53	Drake 1
60	Drake to Logan with Chlorine Dioxide Agreement attached	7-31-53	Drake 2
61	Lucard to Mitchell	9-10-54	FCS 3
62	Woodard to Mitchell	9-16-54	
63	Wurst to Grogan	2- 2-55	Grogan 12 (ABC)
64	Drake to Woodard	2-18-55	Drake 4
65	Grogan to McDonald	2-25-55	Drake 5
66	Woodard to Drake	3- 8-55	Grogan 1
67	Drake to Land	3-23-55	Drake 6
68	Woodard to Grogan	4-28-55	Drake 7
69	Grogan to file	9-15-55	Grogan 10
70	Pennsalt Management Committee Meeting #40	7- 3-56	
71	Drake to F. C. Shanaman	12-17-56	Drake 10
72	F. C. Shanaman to Drake	12-20-56	Drake 11
73	Land to Drake	12-27-56	Drake 13
74	Willits to LaLande	1-22-57	Drake 14
75	F. C. Shanaman to More & Karr	1-22-57	

[fol. 142]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
76	Drake to LaLande	2-21-57	Drake 16
77	Rice to Grogan	3- 6-57	
78	Grogan to Rice	3-11-57	
79	L. M. Shanaman to Grogan	3-26-57	
80	Grogan to Rice	4- 3-57	
81	Grogan teletype message with notes, 4-3-57	2-28-57	
82	LaLande to Drake	3-12-57	Drake 17
83	F. C. Shanaman to LaLande	3-26-57	Drake 18
84	Willits to file	3-27-57	Drake 20
85	Land to Willits	3-29-57	Drake 21
86	Messing to Eastman	4-18-57	
87	Adams (ADL) to Eastman	4-18-57	
88	Sloan to F. C. Shanaman	4-25-57	
89	Pennsalt Management Committee Meeting #59	4-26-57	
90	Adams (ADL) to Sloan	5- 8-57	
91	Wurst to Grogan	6-27-57	Grogan 11
92	L. M. Shanaman to Grogan and 8-19-57 Grogan to L. M. Shanaman	8-16-57	Grogan 3 (A & B)
93	Sloan to F. C. Shanaman with attachment	9-12-57	
94	Ramstad to F. C. Shanaman	9-24-57	
95	Logan to F. C. Shanaman	10- 7-57	

[fol. 143]

96A	LaLande to Drake	10-16-57	
96B	Little Report	8-19-57	Drake 24
96C	Commercial Development Report	10-16-57	Drake 25
97	Land to Lawson	11- 8-57	Land 6
98	Grogan to Lawson	11-15-57	Grogan 4
99	Eastman to Sloan	11-18-57	FCS 7
100	LaLande to Drake and 11-19-57 Woodard to LaLande	11-19-57	
101	Olin Division Management Meeting Minutes	12- 2-57	Richardson 1 and Wojcik 2
102	Willits to file	12- 5-57	Drake 26
103	F. C. Shanaman to Logan	12-17-57	FCS 8
104	L. M. Shanaman to Richardson	12-17-57	LMS 1
105	Logan to F. C. Shanaman	12-19-57	FCS 9
106	F. C. Shanaman to Logan	12-19-57	
107	Lawson to Land	1- 7-58	
108	Land to Lawson	1- 8-58	Land 2
109	Logan to F. C. Shanaman	1-14-58	FCS 10
110	F. C. Shanaman to Logan	1-16-58	FCS 11
111	Logan to file	2- 4-58	Drake 27
112	Pennsalt Press Release	2- 5-58	Drake 48
113	PS-1391 (Pennsalt Press Release)	2-11-58	FCS 12 and Drake 51
114	(None.)		

[fol. 144]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
115	Theobald to King	2-24-58	
116	Olin Bulletin # 1583	2-24-58	
117	Land to Lawson	2-25-58	Land 3
118	Theobald to Officer	2-27-58	
119	Willits to Drake	3-13-58	
120	Woodside to Shera	3-14-58	
121	LaLande to Drake	3-26-58	
122	Tuttle to file	4-22-58	
123	Theobald to L. M. Shanaman	5-22-58	LMS 6
124	Lawson to Land	5-28-58	Land 5
125	L. M. Shanaman to Theobald	5-28-58	
126	Tuttle to Dantin	6-11-58	
127	Logan to F. C. Shanaman	6-16-58	FCS 14
128	F. C. Shanaman to Logan	6-23-58	FCS 17
129	Logan to Frost	6-27-58	LMS 7
130	Land to Lawson	8- 1-58	Drake 28
131	F. C. Shanaman to Land	8- 5-58	FCS 13
132	Haines to LaLande	7- 1-58	
133	Land to F. C. Shanaman	9- 8-58	FCS 15
134	Land to Drake	9- 8-58	Drake 29
135	F. C. Shanaman to Land	9-10-58	FCS 16
136	Pennsalt Management Committee meeting # 88	9-11-58	

[fol. 145]

137	Land to F. C. Shanaman	9-17-58	FCS 18
138	F. C. Shanaman to Land	9-22-58	FCS 19
139	Drake to Land and F. C. Shanaman	9-26-58	Drake 20
140	PS-1454 (Pennsalt Press Release)	10- 5-58	Drake 50
141	Pennsalt Management Committee Meeting # 89	10-13-58	
142	Drake to Land and F. C. Shanaman	10-17-58	FCS 20
143	Eastman to Sloan	10-29-58	Drake 31
144	Woodard to Lande	10-31-58	Drake 15
145	L. M. Shanaman to file	11- 3-58	
146	Eastman to Sloan	11-11-58	Drake 32
147	F. C. Shanaman to File	11-10-58	
148	Pennsalt Management Committee Meeting # 90	11-13-58	
149	Land to Sloan	11-19-58	Drake 3
150	Ramstad to More	12-31-58	
151	Pennsalt Management Committee Meeting # 93	1- 9-59	
152	Ramstad to F. C. Shanaman	1-16-59	
153	Tryson to Woodard	1-20-59	Land 7
154	Pennsalt Appropriations Committee Meeting # 15	1-29-59	LaLande 11
155	PS-1482 (Pennsalt Press Release)	2-10-59	Land 8

[fol. 146]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
156	PS–1482 (Pennsalt Press Release)	2–10–59	Drake 49
157	Logan to McMullen	2–13–59	
158	Olin Division Management Meeting Minutes	2–16–59	Wojcik 4
159	Sloan to LaLande	2–25–59	
160	Logan to Drake	2–27–59	Drake 33
161	Drake to Logan	4– 3–59	Drake 34
162	Logan to Frost	4– 6–59	
163	Logan to Drake	4– 7–59	Drake 37
164	Pennsalt Management Committee Meeting # 99	4– 9–59	
165	LaLande to Drake	4–10–59	Drake 35
166	Drake to LaLande	4–20–59	Drake 40
167	Pennsalt Management Committee Meeting # 100	5– 8–59	
168	Olin Division Management Meeting Minutes	6– 8–59	
169	Olin Division Management Meeting Minutes	6–22–59	
170	Olin Division Management Meeting Minutes	7– 6–59	Wojcik 5
171	Pennsalt Management Committee Meeting # 104	7– 9–59	
172	Drake to Land and LaLande	11–17–59	Drake 41
173	Walker to Drake	12–14–59	Drake 42
174	Land to Drake	12–30–59	Drake 43

[fol. 147]

175	Letter Agreement	2–11–60	Clem 1 and Willits 1
176	Penn-Olin Certificate of Incorporation	2–25–60	
177	Penn-Olin By-Laws		Williamson 1
178	Definitive Agreement (Draft)		Clem 2 and Willits 2
179	Sales Agreement (Seventh Draft)	3– 8–61	Clem 11
180	Service Agreement (Draft)		LaLande 10
181	Definitive Agreement (Conformed copy)	1– 2–61	
182	Sales Agreement (Conformed copy)	1– 2–61	
183	Service Agreement (Conformed copy)	1– 2–61	
184	Pennsalt Policy & Planning Committee Meeting # 1	1– 6–60	F. C. Shanaman 25
185	Block to Osborne	1–22–60	Osborne 4
186	Clem to File	1–25–60	Drake 44
187	LaLande to Drake	1–29–60	LaLande 8
188	McMullen to Williamson	1–29–60	Johns 3
189	Sloan to Clem	2– 1–60	Clem 5
190	Johns to File	2– 3–60	
191	"Minutes of Meeting"	2– 4–60	Williamson 14
192	Pennsalt Notes	Feb. '60	Drake 45
193	"Penn-Olin Chemicals (?) Corporation"	Feb. '60	Drake 46

[fol. 148]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
194	Notes (Olin D73)	2- 4-60	
195	"Visit to Pennsalt Chemical Corporation"	2-25-60	
196	Clem to Drake	2- 5-60	Clem 6
197	Logan to Hopkinson with summary attached	2- 9-60	Hopkinson 2
198	Williamson notes, Penn-Olin C-6F	2-11-60	Williamson 15
199	Drake to File	2-12-60	
200	Drake to Board of Directors	2-12-60	
201	PS-1554 (Pennsalt Press Release)	2-15-60	
202	Grogan to all Salesmen	2-17-60	Grogan 7
203	Pennsalt Full Management Council Meeting # 1	2-18-60	
204	Clark to McWhirter with 2-23-60 Robison to Clark attached	2-24-60	
205	Woodard to McWhirter	2-26-60	
206	Grogan to McWhirter	2-29-60	Grogan 8(A-B)
207	Statz to Mayne	3- 4-60	
208	Johns to Logan	3- 7-60	
209	Tuttle to File	3- 9-60	
210	Hopkinson to Osborne	3- 9-60	Hopkinson 6
211	McWhirter to File	3-10-60	
212	Coombes to Monro-Warrior Coal & Coke Co.	3-17-60	

[fol. 149]

213	Johns to Grogan (and 2-18-60 Grogan to Logan)	3-21-60	Johns 8 & 8A
214	McWhirter to Gipson	3-23-60	
215	Grogan to Clem	3-23-60	Grogan 9
	Clem to Grogan	3-25-60	(A B C)
	Grogan to Clem	3-31-60	
216	Grogan to Clem	3-29-60	Grogan 13
	Clem to Grogan	4- 4-60	(A B)
217	Hagan to Johns	4- 5-60	
218	Woodside to Wilmot	4- 8-60	Northgraves 1
219	Karr to LaLande	4- 8-60	Gardiner 4
220	Pennsalt Appropriation Committee Meeting # 35	4-13-60	
221	Johns to Smith	4-19-60	
	Smith to Shively	4-18-60	Johns 13
	Smart Sales Report	4- 6-60	
222	Wetzel to Williams	4-19-60	
223	Johns to Phillips	4-20-60	
224	Pennsalt Full Management Council Meeting # 7	4-27-60	
225	McWhirter to Clem, et al	5- 2-60	Johns 9
226	Brandt to Johns	5- 6-60	
227	Williamson to Phillips	5-12-60	Clem 10 (also Williamson 7)
	Phillips to Williamson	5-11-60	Williamson 6
228	Johns to Cunningham	5-18-60	Johns 19
229	Pennsalt Appropriation Committee Meeting # 37	5-26-60	

[fol. 150]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
230	Williamson to Williams	5-26-60	Williamson 9
231	Wetzel to Williams	5-23-60	Williamson 8
232	Brandt to Johns with attachments	6- 6-60	
233	Clem to Penfield	6-15-60	Clem 3
234	Clem to File	6-16-60	Land 11
235	Woodard to McWhirter	7- 6-60	
236	Land to Clem	7-11-60	Clem 9
237	LaLande to Wood	7-12-60	
238	Smith Sales Report	7-20-60	Johns 18
239	"Sodium Chlorate Market Survey (for Drummond)"	7-20-60	Johns 14
240	Wood to Logan	7-21-60	Wood 4
241	Woodard to McWhirter	7-26-60	
242	Dietrich to CAR Committee with attachment	7-28-60	Hopkinson 9
243	"CAR Committee Discussion"	7-29-60	Hopkinson 10
244	Pennsalt Appropriation Request: "Penn-Olin Chemical Company"	7-29-60	
245	Olin Special Meeting Minutes	8- 1-60	Hopkinson 11
246	Osborne's Handwritten Notes	8- 1-60	Osborne 5
247	Wood to Block	8- 2-60	
248	Hamstra to Osborne	8-10-60	
249	Watson to File	8-10-60	

[fol. 151]

250	Willits to O'Connell	8-19-60	Willits 12
251	Woodard to McWhirter	8-22-60	
252	Olin Minutes of Financial and Operating Policy Committee	8-24-60	
253	Olin Capital Appropriation Request (Single page)	8-29-60	Osborne 7
254	Olin Capital Appropriation Request (Booklet)	8-29-60	Wood 3
255	Wall Street Journal Extract	8-29-60	Osborne 6
256	Pilling to Marriott	8-30-60	
257	Pennsalt Appropriation Request: "Penn-Olin Chemical Company"	9- 1-60	Drake 38
258	Clem to Willits	9- 2-60	
259	Willits to Drake	9- 6-60	Drake 39
260	PS-1702 (Pennsalt News Release)	9- 6-60	
261	Tuttle to McWhirter	9- 7-70	
262	LaLande to Drake	9- 8-60	
263	Nicolaisen to Hightower	9-14-60	
264	McWhirter to Clem	9-16-60	Johns 20
265	Contract—Ampot-Olin Mathieson	9-20-60	
266	McMullen to O'Brien	9-21-60	Johns 6
267	Telegram, Lee to Block	9-22-60	Osborne 8
268	Dietrich to Present	9-23-60	
269	"Sodium Cholorate Sales Information" (McMullen)	9-26-60	Johns 11

[fol. 152]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
270	McCullough to L. M. Shanaman	10- 3-60	
271	McWhirter to Logan	10- 7-60	
272	Willits to Crawford	10-11-60	
273	Williamson to O'Connell	10-13-60	Williamson 17
274	Olin Sodium Chlorate Market Appraisal and PO Marketing Projection		L. M. Shanaman 10
275	"Sodium Chlorate Consumption" (Olin—7 pages)		
276	Penfield to McWhirter	10-17-60	
277	Penfield & Gormally to McWhirter	10-17-60	
278	McWhirter to File	10-17-60	Willits 3
279	Nusloch to Wilmot	10-18-60	Johns 17
280	Willits to O'Connell	10-27-60	
281	Theobald to Johns	11-16-60	Johns 21
282	Penfield to Collins, LaLande, Land, Lawson, McWhirter, Willits	11-23-60	
283	Williams to Platt	11-29-60	
284	Genetive to Johns	12-13-60	Johns 22
285	Johns to Genetive	12-14-60	Johns 23
286	Garland to Kennedy	12-21-60	
287	Contract: Olin Mathieson—West Virginia Pulp & Paper Co.	12-22-60	Logan 3
288	Johns to L. M. Shanaman	12-30-60	Johns 12

[fol. 153]

289	Johns to L. M. Shanaman	12-30-60	L. M. Shanaman 8
290	L. M. Shanaman to Johns	1-10-61	L. M. Shanaman 9
291	McCoy to LaLande	1-16-61	
292	Chemical Week Extract	6- 3-61	Clem 4
293	Pennsalt Full Management Council Meeting No. 18	6-13-6-16-61	Drake 52
294	Minutes of First Meeting of Penn-Olin Board of Directors	3- 8-60	Williamson 13
295	Williamson to McWhirter	4-22-60	
296	McWhirter to Williamson	4-25-60	
297	Willits to Harrington	4-25-60	
298	Minutes of Quarterly Meeting of Penn-Olin Board of Directors	10-20-60	Williamson 11 Willits 7
299	Willits to O'Connell	11- 9-60	Willits 4
300	Bryce to Willits	11-11-60	
301	Tuttle to Williamson	11-22-60	
302	Willits to O'Connell	12-23-60	
303	Jackson to Willits	12-29-60	
304	Willits to Jackson	1- 3-61	
305	Tuttle to Williamson	1- 6-61	Williamson 4
306	Williamson to Willits	1- 9-61	
307	Willits to Williamson	1-10-61	
308	Williamson to Willits	1-13-61	

[fol. 154]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
309	Jackson to Williamson	1-18-61	
310	Willits to O'Connell	2- 3-61	
311	Jackson to Willits	2- 9-61	
312	Willits to Bryce	2-10-61	
313	Tuttle to Williamson	2-17-61	
314	Willits to O'Connell	3-14-61	Willits 5
315	Jackson to Willits	3-21-61	
316	Tuttle to Williamson	3-23-61	Williamson 3
317	Penn-Olin Bank Statement	3-60	
318	Penn-Olin Bank Statement	4-60	
319	Penn-Olin Bank Statement	6-60	
320	Penn-Olin Bank Statement	11-60	
321	Penn-Olin Bank Statement	12-60	
322	Penn-Olin Bank Statement	1-61	
323	Penn-Olin Bank Statement	2-61	
324	Penn-Olin Bank Statement	3-61	
325	Penn-Olin Bank Statement	4-61	Williamson 16
326	Penn-Olin Bank Statement	5-61	
325	Penn-Olin Bank Statement	6-61	
328	Penn-Olin Financial Statement	4-11-60	
329	Penn-Olin Balance Sheet	4-30-60	
330	Penn-Olin Balance Sheet	5-31-60	

[fol. 155]

331	Penn-Olin Balance Sheet	10-31-60	
332	Penn-Olin Balance Sheet	11-30-60	
333	Penn-Olin Balance Sheet	12-31-60	
334	Penn-Olin Balance Sheet	1-31-61	
335	Penn-Olin Balance Sheet	2-28-61	
336	Mayne to Williamson	2-27-61	
337	Penn-Olin Sodium Chlorate Sales and Earnings	1-61	
338	Penn-Olin Sodium Chlorate Sales and Earnings	2-61	Logan 2
339	Pennsalt Capital Investment Policy No. 1		Drake 19
340	Net Return on Shareholders' Equity		Drake 12
341	Penfield to Drake with PSW-075-P attached	3- 1-56	Drake 8
342	Hagedorn to Shera	8-20-56	F. C. Shanaman 2
343	LaLande to Drake	11-20-56	Drake 9
344	Gardiner to Wojcik	11-26-56	Gardiner 2
345	(Grogan to Gooding	3- 4-57	Grogan 2-A
	(Teletype Messages 2-25-57;	3-4, 5-57	Grogan 2 B, C
	(Gooding to Pennsalt	2-25-57	Grogan 2-D
346	Land to LaLande	4- 4-57	Drake 22
347	F. C. Shanaman to LaLande	4-16-57	Drake 23
348	Shera to F. C. Shanaman	11-14-57	F. C. Shanaman 6
349	Richardson to L. M. Shanaman	2-12-58	L. M. Shanaman 2

[fol. 156]

Plaintiff's Trial Exhibits

PX No.	Description	Date	Dep. Ex. No.
350	Land to Lawson	5- 5-58	Land 4
351	F. C. Shanaman to Land	11-25-58	F. C. Shanaman 21
352	F. C. Shanaman to Drake	3-12-59	Drake 36
353	Tryson to Woodard	3-26-59	Land 10
354	Burdeshaw to Stein	7-16-59	Stein 1
355	Preston to Stein	7-20-59	Stein 2
356	Stein to Block	8- 3-59	Stein 3
357	Teletype re C &E News	8-18-59	Land 9
358	Logan to Johns	11-18-59	Johns 1
359	Johns to McMullen	12-10-59	Johns 2
360	McWhirter to Watson	4- 5-60	Clem 7
361	Clem to McWhirter	6-28-60	Clem 8
362	Olin Capital Appropriation Request (Booklet)	7- 7-60	Johns 24
363	Johns to Drummond	7-22-60	Johns 15
364	Logan to O'Connell	8-11-60	Osborne 9 Willits 13
365	McMullen to District Office Managers	11-30-60	Johns 25
366	Sodium Chlorate Cell with Platinized Titanium Anodes	12-14-60	
367	Pennsalt's Sodium Chlorate Customers (Exhibit 26-1)		Johns 10
368	Pennsalt's sodium chlorate distributors and their customer or other destinations (Ex. 26-2)		F. C. Shanaman 1

[fol. 157]

369	Pennsalt Annual Report	1957	
370	Pennsalt Annual Report	1959	
371	Olin-Mathieson Annual Report	1959	
372	Booklet entitled "Olin-Mathieson Chemical Corporation (Copyright 1957)"		
373	Olin-Mathieson Organizational Chart	7-24-58	
374	Olin-Mathieson Chemicals Division Personnel Chart	9-22-59	
375	Olin-Mathieson Chemicals Division Personnel Chart	2-27-61	
376	Plaintiff's Statistical Data		

[fol. 158] Thursday, November 2, 1961, Ten o'clock a. m.

PRESENT:

For the Plaintiff; Daniel J. Freed, Esq. and Edward A. Copley, Esq.

For Defendant Pennsalt Chemicals Corp.: John T. Subak, Esq.

Mr. Freed: Before we adjourn our documentary submission the Government would like to make several statements for the record about the procedure which has been followed.

First, as a result of stipulations agreed to in principle last night on the subjects of sodium chlorate data stipulations, stipulations which have been called General Stipulations Set 1, and Non-chlorate Stipulations, the Plaintiff has not designated as exhibits additional documents which might have been required in the absence of stipulations.

In addition, as a result of agreement of counsel that the order of the Court on Monday, October 30th, should be interpreted to require both sides to submit in advance to each other all documents to be offered, whether through live witnesses or not; and, of course, with the exception of any [fol. 159] documents that a third party live witness may bring with him for the first time during trial, the plaintiff has offered in evidence Plaintiff's Exhibit No. 376, which includes a number of maps prepared by Mr. Leo Finn, our economist. These maps have been prepared exclusively from data that have been the subject of stipulations and disclose in large part the character of live testimony which Mr. Finn will give next week.

We understand that the defendants will do the same respecting their documents as they become available, and no later than, as the Court ordered, two days prior to the start of their case.

We have taken up with the Court the matter of withdrawal from the Court's files of depositions of Olin and Pennsalt personnel and also the matter of withdrawing certain documents for duplication by plaintiff between now and Monday, and it is my understanding that Judge Steel, being advised that the parties were in agreement that these withdrawals could be made for the purpose of

correction or copying, has consented to this withdrawal.

I should add that the depositions being withdrawn from the Court's files are all depositions except that of Dr. LaLande. In the case of the Olin depositions the plaintiff has undertaken physically to mark corrections in the transcripts. In the case of all depositions the plaintiff has undertaken to mark in red its original designations and in [fol. 160] green its counter-designations. It is our understanding that the defendants will later mark in blue their cross designations.

With respect to the documents being withdrawn we will furnish to the Clerk a list of the exhibit numbers of each document which we will remove today and return Monday to the Court's files.

The Clerk: I don't know whether counsel were on the record when it was agreed that what Mr. Freed has just spoken of could be done, but it was so agreed, I understand, Mr. Subak, by you and Mr. Barnum relative to the withdrawal of exhibits and depositions.

Mr. Subak: We did agree yesterday that the Government could withdraw such documents and such depositions as it wished, and the understanding was that they would be returned on Monday.

There is one minor correction as to what Mr. Freed said. Pennsalt has in fact corrected all the ribbon copies of the depositions of its personnel and of Mr. Fred Shanaman, so that the only corrections to be made are those of Olin personnel.

Mr. Freed: I said that.

(There was a discussion off the record.)

Mr. Subak: As Mr. Freed and I discussed while we were [fol. 161] off the record, the defendants may wish to introduce some documents or other exhibits during the presentation of their live case which may not be available for furnishing to plaintiff two days before defendants begin their case. The defendants will try to give to plaintiff as many of their documents and exhibits as is possible two days before defendants start their case, and at that time will indicate the nature of any other documents or exhibits, if any, which defendants might want to introduce.

As to such additional documents or exhibits we would

undertake to let the Government have a copy as soon as possible, and preferably at least two days before such documents or exhibits would be tendered into evidence.

Mr. Freed: Now that we have submitted to Mr. Pollard a list of the withdrawn documents and in light of all of the statements of counsel this morning, I belive this closes the document offering and marking session, and the parties will return Monday at ten o'clock to continue with the submission of deposition, stipulation, and interrogatory evidence.

The Clerk: I have the exhibits, and I am leaving them in the court room for Mr. Subak to examine and compare with his copies, and when he has finished he will advise me and I will pick them up and have them initialled.

(At this point the trial was adjourned to Monday, November 6, 1961, at 10:00 a. m.)

[fol. 162] Monday, November 6, 1961, 10 o'clock a. m.

PRESENT:

As before noted.

(The following occurred in open Court out of the presence of the Court with the Clerk and Court Reporter present:)

Mr. Freed: Mr. Pollard, the plaintiff appears this morning pursuant to order of Court on Monady, October 30, for the purpose of offering into evidence its deposition, interrogatory and stipulation evidence. The evidence submitted last Wednesday pursuant to Court order included Plaintiff's Exhibits 1 through 376. This morning, as the first part of our submission, we offer into evidence a number of interrogatories grouped by subject matter, each group bearing a separate plaintiff exhibit number. The interrogatory exhibits cover Plaintiff's Exhibits 377 through 391.

Being submitted with those designations are cover sheets for all interrogatories which plaintiff offers into evidence.

It is the intention of plaintiff to recopy all interrogatories and interrogatory responses designated in each of these exhibits and submit them in the folders now being offered in order that the convenience of the Court and the parties [fol. 163] will be served by grouping interrogatories under meaningful subject heading categories. The task of typing or copying interrogatory material is well under way and plaintiff will submit the copies as soon as they are completed.

Plaintiff also offers into evidence this morning as separate exhibits twenty depositions. These depositions will bear Plaintiff's Exhibit Nos. 392 through 411. The sequence of numbers will be the same as appear on plaintiff's supplemental deposition designations, a document which is being submitted this morning pursuant to Court order following counter-designations by the defendants.

I suggest that the transcript of this hearing record the interrogatory numbers and subject headings designated in Plaintiff's Exhibits 377 through 391 and that the list of deponents and appropriate exhibit numbers be recorded following 391 so that as of the moment 411 exhibits will be recorded in the record as having been submitted by the plaintiff.

Under each deposition exhibit the plaintiff suggests that the designations of depositions which are recorded in plaintiff's deposition designations, sets 1 through 5, plus plaintiff's corrections dated October 31, plus plaintiff's supplemental deposition designations, be recorded under the deposition to which those designations pertain. At the same [fol. 164] time the counter-designations made by defendants should also be recorded. For example, Plaintiff's Exhibit 392 will be the deposition of William P. Drake. Under that item on the index of this morning's hearing should be listed the designations contained in plaintiff's deposition designation Set 3 for William P. Drake, the corrections in the way of substitution contained in plaintiff's deposition designations Set 4, the additional corrections noted in plaintiff's deposition designation corrections dated October 31, the counter-designations by Pennsalt and the supplemental designations of William P. Drake on the counter-designations which plaintiff has submitted this

morning. Following the same procedure the record will show on its face all portions of each deposition offered as an exhibit.

The parties have already commenced the marking of the Court's copies of all depositions in the following manner: All original designations by the plaintiff are marked in red. All counter-designations by defendants are marked in blue. All supplemental designations by the plaintiff are marked in green. The parties will continue after today's sessions to complete the crayoning of the Court's copy in accordance with the designations which are this morning being turned over to the reporter.

I would like at this time to request a recess in this sub- [fol. 165] mission of evidence session in order that the parties may proceed with an appointment with Judge Steel, the purpose of which is to submit for approval of the Court three stipulations. After these stipulations have been passed upon by the Court the plaintiff will return and offer them into evidence together with corrections to Plaintiff's Exhibit 376. That exhibit contains a number of data charts and corrections are being made to reflect stipulation sources and also to reflect changes in data as the result of errors in underlying data furnished by one of the defendants.

(At this point a recess was taken.)

Plaintiff's Exhibit No. 377

Personnel

Olin Interrogatories

1. Olin and Penn-Olin officials
5. Olin participants in joint venture negotiations
6 and 7. Olin personnel with responsibilities re sodium chlorate
66. Olin personnel with responsibilities re sodium chlorate and nonchlorates
75. Author of Sodium Chlorate Market Study (PX 239)
78. Authors of Capital Appropriation Request dated July 7, 1960 (PX 362)

[fol. 166] Pennsalt Interrogatories

1. Pennsalt and Penn-Olin officials
5. Pennsalt participants in joint venture negotiations
6. Pennsalt personnel with responsibilities re sodium chlorate.
37. Participants in preparation of Pennsalt's Commercial Development Report (PX 96C)
47. Pennsalt personnel with responsibilities re sodium chlorate and nonchlorates.

Plaintiff's Exhibit No. 378

Chlorine Dioxide Processes and Installation

Olin Interrogatories

8. Olin Mathieson Process users
52. Competitive chlorine dioxide processes
74. Pennsalt's rights under the July 31, 1953 chlorine dioxide licensing agreement

Pennsalt Interrogatories

28. Pennsalt licensees and companies solicited under the July 31, 1953 chlorine dioxide licensing agreement

[fol. 167] Plaintiff's Exhibit No. 379

Penn-Olin

A. Penn-Olin Financing Negotiations
Olin Interrogatories 2 and 88
Pennsalt Interrogatories 2 and 88
B. Construction of Penn-Olin facility
Pennsalt Interrogatory 4
C. Raw Materials for Penn-Olin

Olin Interrogatories:

17. Origin of raw materials
68. Olin as a supplier of Penn-Olin raw materials

Pennsalt Interrogatories:

16. Origin of raw materials
49. Pennsalt as a supplier of Penn-Olin raw materials

Penn-Olin Interrogatories:

16. Origin of raw materials
D. Olin and Pennsalt as Potential Consumers of Penn-Olin.
Sodium Chlorate
Olin Interrogatory 67
Pennsalt Interrogatory 48
E. Stock
Olin Interrogatory 64
F. Treatment of Penn-Olin in Pennsalt Financial Statement
Pennsalt Interrogatory 45

[fol. 168] Plaintiff's Exhibit No. 380

Market Areas for Sodium Chlorate

Olin Interrogatories

19. Area of distribution for Penn-Olin sodium chlorate

Pennsalt Interrogatories

12. Sodium chlorate markets
18. "Southeastern United States"

Penn-Olin Interrogatories

18. "Southeastern United States"

Plaintiff's Exhibit No. 381

Prices

Olin Interrogatories

53. Price and terms of sale of sodium chlorate and calcium hypochlorite
54. Reasons for price differences

Pennsalt Interrogatories

21. Market price of sodium chlorate, calcium hypochlorite, and hydrofluoric acid
22. Pennsalt price and terms re sodium chlorate, calcium hypochlorite, and hydrofluoric acid.
23. Purchasers of Pennsalt sodium chlorate and calcium hypochlorite
24. Reasons for variation in price

[fol. 169] Plaintiff's Exhibit No. 381 (Cont.)

25. and 26. East-West sodium chlorate price differences

Plaintiff's Exhibit No. 382

Pennsalt's Sodium Chlorate Data

Pennsalt Interrogatories

81. Pennsalt sodium chlorate production
82. Pennsalt sodium chlorate productive capacity
85. Consumption and sale of Pennsalt sodium chlorate and derivatives

Plaintff's Exhibit No. 383

Pennsalt Sodium Chlorate Sales and Solicitations

Pennsalt Interrogatories

32. Purchases of sodium chlorate shipped from Portland
33. Shipments to states
34. Shipment to customers east of the Rockies
35. Solicitations east of the Rockies
36. Advertising

Plaintiff's Exhibit No. 384

Pennsalt's Eastern Sales Force

Pennsalt Interrogatory 87

[fol. 170] Plaintiff's Exhibit No. 385

Pennsalt's Sales in the Southeast

Pennsalt Interrogatory 84.

Plaintiff's Exhibit No. 386

Olin Sodium Chlorate Sales and Solicitations

Olin Interrogatories

59. Sales and solicitation of sodium chlorate
60. Advertisements
76. Olin salesmen selling or soliciting sales of sodium chlorate

Plaintiff's Exhibit No. 387

Sodium Chlorate Purchased from Pennsalt and Consumed by Olin

Olin Interrogatory 13

Plaintiff's Exhibit No. 388

Olin Plants and Products

Olin Interrogatory 10

[fol. 171] Plaintiff's Exhibit No. 389

Olin Capital Investments

Olin Interrogatories

79. Investments of more than $5 million since 1956
80. Olin's new capital investment projects in inorganic chemicals

Plaintiff's Exhibit No. 390

Perchlorates

Olin Interrogatories

14. Olin patents re perchlorates
15. Olin research and production activities in solid propellant rocket fuels

Pennsalt Interrogatories

83. Pennsalt's ammonium perchlorate productive capacity
See also 85

Plaintiff's Exhibit No. 391

Nonchlorate Competition

Olin Interrogatories

See Interrogatory 66

Pennsalt Interrogatories

27. Pennsalt competitors in hydrofluoric acid and calcium hypochlorite
See also Interrogatories 21, 22 and 47

[fol. 172] Plaintiff's Exhibit No. 392 (A, B & C)

William P. Drake Deposition

Plaintiff's Designations

3-6(2); 7(24) - 9(22); 11(13) - 19(1); 21(6) - 23(1); 27(18) - 105(18); 106(16) - 108(25); 110(3) - 123(23); 125(21) - 129(2); 133(24) - 135(18); 153(1) - 153(25); 156(4) - 157(9); 162(24) - 166(5); 168(10) - 174(21); 182(21) - 193(15); 194(5) - 195(10); 196(23) - 206(20); 208(17) - 213(18); 216(7) - 218(17); 221(22) - 234(25); 239(3) - 256(22); 258(12) - 267(12); 273(22) - 274(15); 275(14) - 278(24); 281(6) - 282(18); 290(11) - (12); 300 (4) - (13); 302(10) - 304(5); 306-310 (12); 311(10) - (15); 312

(20) - 317(7); 318(7) - 319(19); 320(17) - 322(3); 322(23) - 323(5); 325(8) - 326(15); 327(3) - (11); 331(15) - 338(8); 334-338 (21); 350(7) - 351(21); 352(15) - 356(3).

Defendants' Counter-Designations

7(10) - 7(23); 25(21) - 26(12); 123(4) - 123(15); 124(17) - 125(3); 129(9) - 129(20); 130(17) - 132(end); 142(7) - 145(2); 218(18) - 218(21); 235(1) - 235(18); 257(1) - 258 (11) - (Unless objection to 255(11) - 256(22) and 258(12) - 259(1) is sustained.); 327(12) - 328(13); 361(12) - 362(8).

Plaintiff's Supplemental Designations

133; 141(25) - 142(6); 145(3) - 146(16); 235(19) - (25); 329(17) - (21); 346(7) - 348(end).

[fol.173] Plaintiff's Exhibit No. 393

Fred C. Shanaman Deposition

Plaintiff's Designations

2 - 7(4); 9(4) - 46(22); 48(22) - 75; 78(9) - 88(10); 90(22) - 106(17); 124(3) - (14); 131(11) - 155(3); 173(5) - 208(18); 210(17) - 223(19); 228 - 259(3); 260(19) - 263; 270(2) - 279(1); 285(11) - 286(9); 319(4) - 320; 323(13) - 331(17); 337(13) - 341(5); 344(19) - 347(14); 355(17) - 357(12); 361(12) - 363(4).

Defendants' Counter-Designations

155(4) - 155(6); 157(5) - 157(9); 157(16) - 160(19); 170(3) - 173(4); 314(7) - 319(3); 331(18) - 331(20); 347(18) - 355(16); 357(13) - 361(11); 363(5) - 367(4); 371(2) - (12); 371(19) - 372(12); 373(13) - 381(5).

Plaintiff's Supplemental Designations

155(7) - 157(4); 157(10); 160(19) - 166(13); 367(25) - 370(23); 372(13) - (15).

Plaintiff's Exhibit No. 394

Albert H. Clem Deposition

Plaintiff's Designations

4(13) - 7(11); 8(14) - 12; 13(11) - 14(4); 21(1) -(11); 22(21) - 23(7); 24(11) - 36(9); 39(12) - 40(23); 42(6) - 48(15); 52(8) - 54(23); 55(21) - 63(22); 65(6) - 78(5); [fol. 174] 81(14) - 90(6); 93(20) - 97(20).

Defendants' Counter-Designations

14(5) - (23); 14(24) - 15(20); 21(12) - 22(3); 36(10) - (22); 40(24) - 41(13); 80(6) - (16); 92(10) - (24); 97(23) - 100(14).

Plaintiff's Supplemental Designations

15(21) - 16(7); 22(4) - (20); 41(14) - 42(1).

Plaintiff's Exhibit No. 395

Leroy M. Shanaman Deposition

Plaintiff's Designations

2 - 3(14); 7(20) - 11(24); 13(22) - 15(4); 16(9) - (23); 28(13) - 29(3); 29(22) - 30(3); 32(21) - 33(12); 35(21) - 37(14); 41(4) - 45(3); 53(11) - (25); 55(16) - 56(7).

Defendants' Counter-Designations

3(15) - 4(9); 7(7) - 7(19); 13(7) - 13(12); 15(5) - 17(18); 29(4) - 30(3); 34(20) - 35(20); 45(4) - 45(18 to "out here."); 50(6) - 53(10).

Plaintiff's Supplemental Designations

45(18) - 46(1).

[fol. 175] **Plaintiff's Exhibit No. 396**

William Cooper Willits Deposition

Plaintiff's Designations

286 - 292(11); 294(20) - 297(17); 298(9) - 298(25); 300(15) - 303(8); 304(9) - 307(10); 308(7) - 310(11); 311(12) - 314(15); 317(1) - 317(17); 319(21) - 320(9); 327(15) - 328(5); 333(9) - 334(25); 350(11) - 355(16); 360(11) - 363(2).

Defendants' Counter-Designations

292(18) - 294(19); 303(9) - 304(8); 307(11) - 308(2); 310(12) - 311(11); 314(16) - 314(25); 316(4) - 316(25); 329(10) - 329(23).

Plaintiff's Supplemental Designations

315(1) - 316(3).

Plaintiff's Exhibit No. 397

George T. Collins Deposition

Plaintiff's Designations

2 - 3(23); 5(11) - 8(12); 9(1) - 10(12); 11(3) - 13(19); 14(15) - 15(4); 18(16) - 19(12); 20(6) - 21(6); 25(1) - 25(10); 26(5) - 26(10).

Defendants' Counter-Designations

21(7) - 21(24); 24(20) - 24(24).

Plaintiff's Supplemental Designations—None

[fol. 176] **Plaintiff's Exhibit No. 398**

James McWhirter Deposition

Plaintiff's Designations

3(14) - 5(22); 12(11) - 20(7); 23(8) - (14); 24(11) - 25(12); 27(7) - 30(20); 31(11) - 33(2); 34(6) - 35(21); 36(19) - 37(9); 44(15) - (24); 45(6) - (8); 45(17) - (24); 46(6) - (11); 49(11) - (20); 52(12) - 53(1); 53(15) - 54(5); 55(18) - 56(11); 59(11) - 61(21); 70(3) - 73(21); 82(9) - 83(24); 94(5) - 98(9); 99(2) - 101(2); 115(20) - (24); 122(12) - 123(21); 125(20) - 126(20); 127(18) - 128(12); 130(11) - 138(3); 166(8) - (18); 169(14) - 170(2).

Defendants' Counter-Designations

8(1) - 8(18); 30(21) - 31(2); 33(3) - 33(9); 35(22) - 36(1); 38(9) - 39(8); 53(2) - 53(10); 75(17) - 82(8); 91(12) - 94(3); 127(8) - 127(17); 153(17) - 158(end); 166(19) - 167(21).

Plaintiff's Supplemental Designations

7(18) - (24); 11(14) - 12(10); 26(11) - 27(6); 39(9) - (24); 87(11) - 88(6); 90(5) - 91(11); 111(23) - 112(4); 159-161(3); 165(11) - 166(7); 167(22) - 168(17).

Plaintiff's Exhibit No. 399

George D. Grogan Deposition

Plaintiff's Designations

2 - 22(3); 24(16) - 24(24); 27(19) - 31(18); 33(3) - [fol. 177] 38(2); 40(7) - 44(1); 48(9) - 51(13); 55(12) - 56(6); 58(16) - 64(16); 67(5) - 67(24); 74(2) - 76(12); 77(7) - 79(24); 82(8) - 83(6); 85(16) - 86(13); 88(19) - 90(7); 91(3) - 92(20); 95(21) - 96(19); 97(5) - 97(18); 98(16) - 109(17); 110(9) - 113(21); 119(7) - 121(4); 122(9) - 123(8); 125(6) - 127(14); 128(5) - 129(11); 131(5) - 133(1); 133(24) - 134(5).

Defendants' Counter-Designations

31(19) - 31(21); 39(17) - 40(6); 44(2) - 47(4); 51(14) - 51(24); 52(8) - 52(15); 54(1) - 55(11); 56(7) - 58(15); 64(17) - 66(12); 72(3) - 74(1) - 83(7) - 85(14); 86(14) - 87(1); 92(21) - 94(17); 121(17) - 122(8); 123(10) - 123(19); 124(13) - 125(5); 127(15) - 128(4); 129(12) - 131(4); 134(7) - 137(19).

Plaintiff's Supplemental Designations

47(5) - (25); 123(20) - 124(12).

Plaintiff's Exhibit No. 400

Hugh C. Land Deposition

Plaintiff's Designations

3(18) - 76(18); 81(13) - 107(15); 112(9) - 187(4); 190 - 195.

Defendants' Counter-Designations

187(5) - 189(24).

[fol. 178] Plaintiff's Supplemental Designations

None

Plaintiff's Exhibit No. 401

Dr. William C. Gardiner Deposition

Plaintiff's Designations

2 - 24(12); 27(11) - 40(19).

Defendants' Counter-Designations

27(2) - (7).

Plaintiff's Supplemental Designations

27(7) - (10).

Plaintiff's Exhibit No. 402

Stanley de J. Osborne Deposition

Plaintiff's Designations

2(25) - 8(16); 13(1) - (23); 28(12) - 29(9); 30(19) - 31(2); 33(6) - (14); 36(4) - (12); 56(7) - 58(23); 61(11) - 62(7); 63(12) - 65(11); 66(25) - 67(13); 68(14) - 70(17); 71 - 73(11); 75 - 76(18); 77(16) - 79(9); 81(12) - (22).

Defendants' Counter-Designations

13(24) - 14(14); 16(19) - 21(2); 22(5) - 24(17); 24(24) - 26(6); 27(8) - 28(11); 29(10-18); 31(4) - 32(18); 32(25) - 33(5); 33(15) - 34(9); 34(17-19); 34(24) - 35(18); 36(20) [fol. 179] - 37(12); 38(12-19); 39(20) - 40(11); 41(14) - 48(14); 51(3-15); 52(15) - 53(16); 62(8) - 63(3); 66(17-22); 74(6-25); 77(2-15); 82(2) - 87(17); 90(2) - 93(3); 93(21) - 94(8).

Plaintiff's Supplemental Designations

8(17) - 12(25); 14(15) - 16(18); 21(4) - 22(4); 24(18) - (23); 26(7) - 27(7); 32(19) - (24); 34(10) - (16); 34(20) - (23); 35(19) - 36(3); 36(13) - (19); 38(20) - 39(19); 40(2) - 41(13); 50(5) - 51(2); 51(16) - 52(3); 53(17) - 55(19); 60(9) - (14); 61(1) - (10); 76(19) - (25); 93(1) - (20).

Plaintiff's Exhibit No. 403

Derek Richardson Deposition

Plaintiff's Designations

1 - 4(14); 6(6) - 10(12); 12(2) - 15(15); 17(6) - 18(8); 20(9) - 22(13), 24(3) - 25(4); 26(6) - (14); 28(23) - 30(6); 31(21) - 35(1); 38(2) - (13); 39(7) - 41(2); 42(12) - 44(12); 46(14) - 49(1); 50(14) - 54(23).

Defendants' Counter-Designations

4(15-18); 11(3-9); 15(16) - 16(15); 18(9) - 20(8); 22(23) - 23(20); 30(7-11); 30(23) - 31(5); 31(10-20); 35(17) - 37(18); 55(7-14).

Plaintiff's Supplemental Designations

30(12) - (22); 31(6) - (9); 37(19) - 38(1); 55(15) - (20).

[fol. 180] Plaintiff's Exhibit No. 404

Dr. Norman O. Stein Deposition

Plaintiff's Designations

3 - 17(1); 18(4) - 23.

Defendants' Counter-Designations

None

Plaintiff's Supplemental Designations

None

Plaintiff's Exhibit No. 405

Cecil L. Williamson Deposition

Plaintiff's Designations

3 - 4(9); 6(5) - 7(20); 10(11) - 11(3); 82(14) - 97(19); 104(1) - 111(4); 118(20) - 129(18); 145(10) - 165(13); 173(16) - 177(6).

Defendants' Counter-Designations

66(4-15); 118(1-19); 178(11-21).

Plaintiff's Supplemental Designations

179 - 180(1).

Plaintiff's Exhibit No. 406

Dr. Bruno H. Wojcik Deposition

Plaintiff's Designations

131 - 136(12); 137(11) - 138(3); 139(11) - 140(5); 141(21) - 143(15); 148(13) - 151(16); 152(18) - 166(8); [fol. 181] 167(21) - 175(18); 181(3) - 182(9); 185-187;

192(9) - 194(10); 198 - 199(3); 202(9) - 208(11); 211(10) - 220(14); 222(15) - 223(11); 227(3) - 231(3); 237(16) - 243(9); 243(19) - 246(9); 247(3) - 260(18); 264(12) - (18); 268(8) - 270; 272(4) - 281(16); 285(9) - 292(20); 293(20) - 294(15).

Defendants' Counter-Designations

144(18) - 147(10); 147(16) - 148(12); 152(13-17); 167(8-18); 188(9) - 189(3); 190(3-20); 196(21) - 197(15); 208(12-14); 208(21) - 211(7).

Plaintiff's Supplemental Designations

147(11) - (15); 151(17) - 152(12); 189(4) - 190(2); 197(16) to end; 208(15) - (20).

Plaintiff's Exhibit No. 407

Joseph L. Wood Deposition

Plaintiff's Designations

4 - 6(19); 35(20) - 42(15), 46(19) - 48(16); 54-55(1).

Defendants' Counter-Designations

7(21) - 8(4); 9(16) - 15(16); 16(6-13); 19(3-11); 21(1) - 25(4); 26(7-20); 27(9) - 29(16); 30(4) - 33(5); 34(10-18); 42(16) - 43(20); 50(3) - 51(7); 51(12-14); 52(6) - 53(21); 55(2-17); 57(10) - 60(14); 60(21) - 62(15).

[fol. 182] Plaintiff's Supplemental Designations

26(21) - 27(5); 33(6) - 34(9); 34(19) - 35(6); 48(17) - 50(1); 51(15) - 52(5); 60(15) - (20).

Plaintiff's Exhibit No. 408

John O. Logan Deposition

Plaintiff's Designations

1 - 30(2); 36(7) - 54(21); 57(4) - 60(2); 62(3) - 66(5); 68 - 74(11); 77 - 80(13); 82(6) - 110(17); 113 - 118; 122(17) - 130(3); 133 - 134(15); 137(23) - 205(6); 206(12) - (24);

209(20) - 214(18); 217(3) - (16); 220(18) - (23); 224(2) - 253.

Defendants' Counter-Designations

56(18) - 57(3); 74(12-15); 75(17) - 76(1).

Plaintiff's Supplemental Designations

None

Plaintiff's Exhibit No. 409

Russell Hopkinson Deposition

Plaintiff's Designations

2 - 12(11); 22(5) - 22(13); 23(22) - 25(15); 30(9) - 32(2); 32(17) - 32(23); 40(20) - 44(15); 46(5) - 46(16); 54(2) - 62(13); 72(19) - 72(23); 74(9) - 74(20); 76(14) - 76(24).

[fol.183] Defendants' Counter-Designations

16(1) - 19(18); 20(19) - 21(18); 26(18) - 28(8); 30(2-8); 33(15) - 35(12); 36(17) - 37(16); 38(1-8); 49(9-22); 50(18) - 52(18); 62(14) - 64(19); 68(5) - 72(18); 79(21) - 81(10); 82(7) - 87(2); 94(6-17); 99(7) - 100(7); 104(3) - 105(1); 106(24) - 108(6).

Plaintiff's Supplemental Designations

14(13) - 15(7); 35(13) - 36(16); 38(9) - 40(19); 52(19) - (24); 81(11) - 82(3); 103(16) - 104(2); 105(2) - (21); 106(8) - (23).

Plaintiff's Exhibit No. 410

James G. Johns Deposition

Plaintiff's Designations

305 - 339(19); 341(8) - 369(5); 366(14) - 369(13); 371(20) - 374(16); 377(14) - 378(15); 385(13) - 392; 394(16) - 396(5); 404-412(6); 414(15) - 422(17); 425(2) - 436; 438 - 445(5); 449(6) - 454(20); 456(7) - 463(6); 464(8) - 468(6); 472(11) - 476(11); 485(17) - 496(15);

497(18) - 508(12); 512(6) - 515(8); 517(6) - 528(15); 536(2-18); 538(8) - 541(19); 545(3) - 546(3); 552(5) - 553(8); 567(8-14); 569(18) - 570(9); 572(13) - 574(6); 597(12) - 601(5); 606(14) - 607(12); 612(5) - 627(2).

[fol. 184] Defendants' Counter Designations

374(17) - 376(14); 445(6) - 447(14); 496(16) - 497(17); 542(13) - 544(2); 553(9) - 554(7).

Plaintiff's Supplemental Designations

541(20) - 542(12).

Plaintiff's Exhibit No. 411

Walter W. Northgraves Deposition

Plaintiff's Designations

1 - 5(9); 13(3) - 37(10); 39(2) - 52(12); 53(18) - 54; 56(2) - 65(9); 67-79(20); 89(10) - 92(7); 107(18) - 113(7); 116-117(8); 121(12) - 122(2); 123(6-20).

Defendants' Counter-Designations

37(11) - 38(3); 38(9) - 39(2); 79(21) - 89(4); 92(8) - 96(3); 98(14) - 99(17); 103(10) - 107(17); 113(8) - 114(19); 115(13-20); 117(9) - 121(11); 122(3) - 123(5).

Plaintiff's Supplemental Designations

None.

[fol. 185] (In Chambers.)

The Court: What is it?

Mr. Freed: Your Honor, the sole purpose of this morning's conference is to submit to you three stipulations which the parties have entered into for the purpose of shortening the trial; stipulating to a number of facts which, we understand from your remarks at the pre-trial conference on October 17, do require approval of the Court.

Any discussion of the substance of these has been requested by defendants to be deferred until the opening of

court this afternoon when other defense counsel can be present.

In submitting them to you at this time I would simply like to state that one of the stipulations is called "Non-Chlorate Stipulation" and covers the matter that was taken up extensively at the pre-trial conference of October 17. And the parties have worked hard and have reached agreement between themselves as to what is being stipulated, and we know of no issue between ourselves on the subject matter of the non-chlorate part of the case. But in submitting it to you we do want to be sure that the Court understands the parties' language, because last time the parties' language did not communicate fully our intent. We would hope at this afternoon's session if there are any questions about the meaning of the language that they could be taken up and straightened out.

[fol. 186] The only other item that may require some statement will be Item 44, what is called, "General Stipulations, Set I," which reads, "Sodium chlorate constitutes a single line of commerce within the meaning of Section 7 of the Clayton Act."

It was our intention to offer these three stipulations as three separately designated plaintiff's exhibits, and we can perhaps defer the identification of these as exhibits and the offering until this afternoon's session, if you wish.

One of the stipulations, which is purely factual and covers the data part of the case is the basis upon which we will return to the court room now and read into the record certain corrections or changes in an exhibit book, Plaintiff's Exhibit 376, which contains a number of charts and graphs prepared by the Government and submitted last Wednesday.

As a result of these stipulations the source material listed on the original Plaintiff's Exhibit 376 can now be clarified and citations made to stipulated data rather than to underlined data.

We propose to substitute for the Court's record clean pages that have been redone in light of the stipulations.

The Court: Do you propose to leave anything with me to look at?

Mr. Freed: We propose to leave all of the stipulations with Your Honor, and on two of the stipulations a blank

has been left for the approval of the Court. It was inad-
[fol. 187] vertently left off the third one.

The Court: Very well. I shall endeavor to look these over before this afternoon.

Mr. Barnum: I must apologize for the fact that Mr. Potter's name or his firm's name is not affixed to these stipulations. I told him this morning it would not be necessary for him to be here at 10:00.

The Court: He can simply sign them when he comes over, or some later time.

Mr. Barnum: Thank you.

(In open court, out of the presence of the Court; Mr. Freed, the Clerk of the Court, and the Court Reporter only being present.)

Mr. Freed: Mr. Pollard, with the approval of the defendants the Government wishes to submit at this time a substitute for its Plaintiff's Exhibit 376. This substitute is a blue-covered book containing a number of charts and maps.

The material in this booklet is virtually the same as that submitted last Wednesday. It has been modified to reflect stipulations or stipulation sources for data; and, also, to make a number of minor corrections agreed to by the parties last week.

In addition, several pages of the original book have been
[fol. 188] removed because they contained erroneous data. By agreement with the defendants the Government will submit corrected material as soon as the corrected data is received from the defendants.

I would now like to offer Plaintiff's Exhibit 376, New Version, in lieu of the exhibit submitted last Wednesday.

(Plaintiff's Exhibit 376, New Version, was received in evidence and marked as "Plaintiff's Exhibit No. 376.")

(At this point a recess was taken until 2:00 p.m. the same day.)

[fol. 189] 2 o'clock p. m., The same day.

PRESENT:

As before noted.

Mr. Freed: Your Honor, pursuant to the order of Court on October 30, 1961, the plaintiff has, since last Monday, offered into evidence 411 exhibits, including documents, depositions and interrogatories. All of these exhibits were submitted in the presence of the Clerk, the Court Reporter, and counsel for the parties.

May the record show now that these exhibits are received in evidence subject to objections of the parties in their briefs?

The Court: They are so received in evidence subject to the qualification you have stated.

(Plaintiff's Exhibits 1 to 411, inclusive, were received in evidence.)

Mr. Freed: Since the last session in open Court the parties have entered into three sets of stipulations which have not yet been entered as exhibits. The first stipulation is entitled, "Sodium Chlorate Data Stipulation." The stipulation has been signed by the parties, subject to the approval of the Court, and I would like to offer this stipulation [fol. 190] as Plaintiff's Exhibit 412, subject to approval of the Court.

The Court: I have read the stipulation and approve it and it is admitted in evidence. Is there a place on the stipulation for me to evidence my approval by signing it or is my approval sufficiently evidenced by this statement?

Mr. Freed: The Government is satisfied with you Honor's statement in open Court. Inadvertently an approval line was left off this particular stipulation.

The Clerk: With the consent of counsel, your Honor, I am inserting the date of the 6th of November.

(The stipulation entitled, "Sodium Chlorate Data Stipulation" was received in evidence and marked "Plaintiff's Exhibit No. 412.")

Mr. Freed: The Government would like next to offer into evidence as Plaintiff's Exhibit 413 a stipulation entitled "Non-Chlorate Stipulation." This stipulation is divided into two numbered parts. In the first part the parties agree that competent witnesses, if called by the plaintiff, would testify to a number of facts.

Part 2 of the Non-Chlorate Stipulation reads as follows: That the parties agree to the following:

> "That the presence or absence of substantial com-
> [fol. 191] petition between Olin and Pennsalt with respect to production and sale of ammonia, caustic soda, chlorine, and hydrofluoric acid or of the existence of any relevant market for such chemicals is not relevant to the determination of any issue in this case."

I would like for the record, sir, to make a brief statement as to why the parties agreed in the Government's understanding to that stipulation as to relevancy.

The Court: Do you have a copy of the stipulation that I can look at?

The Clerk: PX-413.

The Court: It has not been admitted yet, Mr. Clerk. Perhaps it will be.

Mr. Freed: In part 1 of the non-chlorate stipulation, among the many facts that are there agreed upon there appears as Sub-paragraph (b) the following statement:

> "In the case of calcium hypochlorite the relevant market is nationwide and the competition between Olin and Pennsalt in the sale of calcium hypochlorite is substantial."

It was the agreement of the parties, dating back almost to the outset of this case, that if there were a stipulation as to substantial competition between the parties in a relevant market on a product other than sodium chlorate which [fol. 192] is involved in this case, that such a stipulation would adequately raise the question of the relevancy of competition in other chemicals to the issues in this case.

The parties were in agreement and are in agreement that whether or not there is a relevant market for each of the

other chemicals listed here, and whether competition in such relevant market or markets is substantial is not necessary to agree upon or to show since if there is substantial competition between the parties in a relevant market, how many times it is substantial or in how many markets it is substantial, or in how many products it is substantial did not appear to be necessary to decide in this case.

In the words of counsel for one of the defendants early in this case the parties did not desire to try seven separate Section 7 cases.

The Court: In other words, from the Government's standpoint it can be assumed that with reference to the chemicals which are described in Paragraph 2 of the non-chlorate stipulation it may be assumed there is no competition between the parties in any portion of that?

Mr. Freed: No. Such an interpretation would be contrary to the words of the first part of the stipulation itself. The parties are in agreement as shown by Paragraph 1(a) that Olin and Pennsalt each sell seven chemicals, that [fol. 193] competition in two is de minimus, but that the two companies do compete in the sale of five others.

Set forth as Appendix A to this stipulation is a chart of agreed data which shows the volume of sales by each of the defendant companies in these competitive chemicals. It is only the question of whether each chemical constitutes a relevant market in and of itself, and whether there is substantial competition in those markets that the parties did not feel was relevant to any issue in this case so long as a guinea "pig chemical," namely, calcium hypochlorite, was stipulated to insofar as substantiality and relevant market was concerned.

With that explanation, and subject to any disagreement if I have made a misstatement, by the defendants, the Government offers the non-chlorate stipulation into evidence as Plaintiff's Exhibit 413.

The Court: Is there any objection to the admission of the stipulation, subject to the explanation which has just been offered?

Mr. De Lone: None in light of the reservations and the stipulations, but I just would like to say for the sake of clarity that, of course, agreeing on this guinea pig for this present and this relevant market is in no sense an

agreement on our part that the nationwide market is the [fol. 194] relevant market in sodium chlorate. I do not believe Mr. Freed intended that. I was afraid his remarks might be so interpreted.

Mr. Freed: It is our understanding that this stipulation has nothing to do with sodium chlorate.

The Court: The stipulation is admitted, subject to the explanation which has just been given by the Government.

(The stipulation entitled "Non-Chlorate Stipulation" was received in evidence as "Plaintiff's Exhibit No. 413.")

Mr. Freed: The third set of stipulations which the Government now offers into evidence as Plaintiff's Exhibit 414 is entitled, "General Stipulations, Set 1." At the moment there is no Set 2, nor are any further stipulations contemplated.

These stipulations cover a number of miscellaneous facts, and only with respect to one item, namely, Stipulation No. 44, is there a need or a possible need for explanation.

The Court: May I have a copy of that stipulation you are referring to?

Mr. Freed: Item 44 of the general stipulations reads:

> "Sodium chlorate constitutes a single line of com- [fol. 195] merce within the meaning of Section 7 of the Clayton Act."

I believe Mr. De Lone would like to make a statement to the Court with reference to this stipulation.

Mr. De Lone: If the Court please, I simply do not want to mislead either the Court or the Government concerning the significance of this stipulation. We agreed that sodium chlorate is a single line of commerce, but as I think is recognized both by the Government and by counsel for the defendants, sodium chlorate has different uses, different applications and also is marketed differently in the sense that it is marketed both in bulk and in packages.

We will urge your Honor to take into account some of these factors in your decision as to what is the relevant sodium chlorate market in this case and in your decision as to the effect on competition.

We simply did not want there to be any misapprehen-

sion that, agreeing we are dealing with only a single line of commerce, does not exclude consideration of these parts, if you will, or aspects of that single line of commerce in arriving at the decision with reference to relevant market and effect on competition.

Mr. Freed: Your Honor, I do not believe that there is any disagreement between the parties. As we indicated [fol. 196] in our opening statement, sodium chlorate is used in many places, and for many reasons, and I think the parties have been in agreement since the beginning that the Court should take into account all of the aspects of the sodium chlorate business in deciding the case, and we are certainly in agreement that each of the uses and each of the methods of packaging and each other element of marketing this product are relevant for the Court's consideration.

In light of the statements of counsel and the agreement of counsel, I would like to offer into evidence the General Stipulations as Plaintiff's Exhibit 414.

The Court: The General Stipulations, Set 1, are admitted in evidence, subject to the explanatory comments which I have just heard.

(The General Stipulations, Set 1, were received in evidence and marked "Plaintiff's Exhibit No. 414.")

Mr. Freed: The Government would now like to call as its first live witness in this case Mr. Fred Berggren.

EVIDENCE ON BEHALF OF THE GOVERNMENT

FRED H. BERGGREN, a witness called by the Government, being first duly sworn, testified as follows:

[fol. 197] Direct examination.

By Mr. Freed:

Q. Mr. Berggren, would you state by whom you are employed?

A. Yes. I am currently employed by Hooker Chemical Corporation, Niagara Falls.

Q. Niagara Falls, New York?

A. Yes.

Q. What is your position with Hooker Chemical Corporation?

A. At the present time I am supervisor of Inorganic Chemicals.

Q. Would you tell us what the scope of your responsibilities in that position is?

A. Well, my main job is to oversee sales, manage the sales of these chemicals, which were formerly Oldbury chemicals.

Q. And is sodium chlorate one of the chemicals under your supervision?

A. Yes, it is.

Q. Mr. Breggren, how long have you held your present position with Hooker?

A. As supervisor, I take it that would be the last title, that would be since 1956.

[fol. 198] Mr. De Lone: Would you suggest to the witness that he keep his voice up, Mr. Freed? It is a little hard to hear.

The Court: Mr. Berggren, the accoustics are bad here and it would be helpful if you would try to cast your voice so the people even in the back of the room can hear you.

The Witness: I will try to speak louder.

By Mr. Freed:

Q. Mr. Berggren, turning your attention back to your first employment by Hooker or a predecessor corporation, would you tell us what positions you have held in those organizations?

A. Originally I went to work for Oldbury Electrochemical Company in 1937. I was primarily sales and promotion at that time for sodium chlorate for agricultural use, and I held that job for three years, and then I was brought in and was made a part of our entire sales group. Most of my work was done on sodium chlorate, however.

Q. And beginning in 1940 what was the title that you held with Oldbury Electrochemical Company?

A. Just salesman.

Q. Salesman?

A. Salesman.

Q. Between 1940 and 1956 did you hold any other positions in Oldbury or its successor?

[fol. 199] A. Yes. I was assistant sales manager just before the merger, for two years prior to the merger in '56—from '54 on, for two years.

Q. And would you tell the Court what merger you are referring to?

A. It was the merger between Oldbury Electrochemical Company and Hooker Electrochemical Company at the time.

Q. And that merger took place when?

A. 1956.

Q. Beginning in 1957 can you tell us, sir, what experience you have had in the sodium chlorate field?

A. Leading up to 1957 from the very beginning?

Q. Yes.

A. Yes. From 1937 on I did a great deal of work in promoting the use of sodium chlorate as a herbicide, and up until mid-1945 I did considerable work on chlorine dioxide bleaching, that is, promoting of chlorine dioxide bleaching in pulp, and it involved sales as well as promotion work.

Q. And have your sales and promotion activities which commenced in 1945 continued up to the present time?

A. Yes, but not to the extent that I was doing it. We have many other people that are doing similar work now.

Q. Mr. Berggren, at the time you first came into contact with sodium chlorate can you tell us the principal pur-[fol. 200] poses for which sodium chlorate was used?

A. Yes. It was used in regular industry as an oxidant in dyes and colors and in refining certain metals. That was the primary use at that time.

Q. Did there come a time when the principal use of sodium chlorate changed?

A. Yes, sir. Well, shortly after 1937, say 1940, why, our sales were largely to the agricultural field, as well as railroad weed killing—in agricultural sale as a herbicide.

Q. Can you tell us the years during which that was true?

A. Well, it is still true today that a considerable part of it is used for weed killing except that it is not the largest use at the present time.

Q. At which point in time did the principal use of sodium chlorate for agricultural and weed-killing purposes change?

A. 1954 would be the year.

Q. And can you tell us what change occurred in that year?

A. Well, that was the year that a number of pulp mills converted over to chlorine dioxide bleaching. Two or three mills had already done so in '52 or '53. '54 seemed to be the year that a great number of mills converted their [fol. 201] bleaching sequence over to chlorine dioxide, and it was quite a development from then on.

Q. Can you tell us briefly what the purpose of chlorine dioxide bleaching is?

A. Well, the advantage chlorine dioxide has over certain other bleaching chemicals is that it doesn't have any deteriorating effect on the fibers of the pulp or it doesn't degrade the pulp.

The Court: If any of defense counsel wish to sit over here in the jury box while this witness testifies, it will be quite satisfactory.

Mr. De Lone: Thank you, sir.

Mr. Connelly: Thank you.

The Court: Now, despite the fact that counsel have moved, I am going to ask that you talk to the people in the back of the room. Throw your voice up as loud as you can.

The Witness: All right.

In other words, chlorine dioxide doesn't degrade pulp and you can bleach it to a high brightness without any bad effects.

Q. Do you know, sir, the extent to which sodium chlorate's use for the purpose you have just testified to is important today? Can you give us any measure of its importance?

[fol. 202] A. Do you refer to tonnage? Is that primarily what you are——

Q. Tonnage would be satisfactory.

A. Well, sodium chlorate for bleaching pulp and paper would be approximately 65 per cent of our sales on sodium chlorate at this time.

Q. Do you know, sir, approximately what portion of the total use of sodium chlorate today is devoted to pulp and paper bleaching?

A. Yes. Well, this would be my estimate that 50 per cent is used for that purpose.

Q. Can you tell us the total tonnage you have in mind in giving us that figure?

A. Yes, 52,000 tons annually.

Q. Does that represent the total estimated use of sodium chlorate for pulp and paper bleaching?

A. Yes. That is based on my estimate. It may not be absolutely correct.

Q. Mr. Berggren, can you tell us what uses apart from pulp and paper bleaching that sodium chlorate is used for today?

A. Well, pulp and paper would be number one in tons; then would come agricultural use, and uses as a herbicide, and in that category I would put railroad weed killer; then [fol. 203] would come—in tonnage would be in uranium processing.

Q. On the basis of your familiarity with the sodium chlorate business can you tell us where in the United States sodium chlorate is consumed for the various purposes you have outlined?

A. Would you be referring to our sales or a total use?

Q. The total use.

A. I would say the southeast as far as pulp and paper is by far the largest use and the principal area; then the midwest is considerable for agricultural use and for railroad weed killing. That would be pretty much nationwide, as I see it.

Q. With respect to the uranium industry where would the use take place?

A. That would be in Colorado, Wyoming, and New Mexico, and eastern Utah.

Q. With reference to the pulp and paper industry are there any areas apart from the southeast that you have mentioned where sodium chlorate is used by pulp and paper companies?

A. Yes. There are several mills in New England, and there is one in Michigan, and one in Wisconsin at the present time; and there are several out in the northwest.

[fol. 204] Q. Mr. Berggren, would you tell us where and how Hooker Chemical Corporation entered the sodium chlorate business?

A. You are going back to the original company, I take it. Well, Oldbury Chemical Company was formed in 1896 at Niagara Falls, and it was there we started to make sodium chlorate.

Q. Did there come a time when Oldbury commenced the manufacture of sodium chlorate at a location other than Niagara Falls?

A. In 1954 we came into production with our Columbus, Mississippi, plant, which was built exclusively at that time for sodium chlorate production.

Q. Could you tell us how large Oldbury's plant at Columbus, Mississippi, was when first constructed?

A. Initially twelve thousand tons.

Q. At the time Oldbury's plant was built at Columbus, Mississippi, can you tell us what other activities in the area of that plant Oldbury was engaged in?

A. At the time that the plant was built?

Q. Yes.

A. That was primarily the only activity we had in that area. We had one other product that was being sold in the south which was manufactured at Niagara Falls and has since been transferred to Columbus.

[fol. 205] Q. What was the other product?

A. Phosphorous pentasulphide.

Q. Was that product being sold in the south prior to the construction of the Columbus plant?

A. Yes, it was.

Q. Can you tell us the approximate volume of sales of that product?

A. At that time it was about 800 tons.

Q. Can you give us a dollar measure of those sales?

A. At that time it sold for 13½ cents a pound.

Q. At the time Oldbury's plant was constructed at Columbus, Mississippi, did Oldbury have any other facilities at that location?

A. Not at Columbus, Mississippi; no, we did not.

Q. Was your plant constructed in relation to any other plant?

A. No.

Q. Do Oldbury's facilities at Columbus, Mississippi, today make any other product apart from sodium chlorate?

A. This phosphorous pentasulphide. We made it down there now.

Q. Apart from the two products you have mentioned, does Hooker or Oldbury Division today sell any other products in the south apart from sodium chlorate and phos- [fol. 206] phorous pentasulphide?

The Court: What is the exact name, phosphorous pentasulphide?

The Witness: Yes, phosphorous pentasulphide.

By Mr. Freed:

Q. Other than sodium chloride and phosphorous pentasulphide.

A. Would you repeat that question? I didn't quite understand it.

(The question was read by the reporter as follows:)

"Apart from the two products you have mentioned does Hooker or Olberry Division today sell any other products in the south apart from sodium chloride and phosphorous pentasulphide?"

A. Yes, we do, in a minor way. We have several minor chemicals we sell down there. I am not familiar with all of them because we have several divisions in our company and I am not familiar with the other divisions.

Q. Mr. Berggren, where is the output of Hooker's Columbus, Mississippi, Plant sold, confining your answer to sodium chlorate?

A. Yes, it is sold in the southeast, the mid-west, in this area, even on up into New England, and the far west. We [fol. 207] ship also to Southern California and the Colorado Plateau area.

The Court: These shipments are from Niagara Falls?

A. This is just Columbus he was mentioning.

By Mr. Freed:

Q. Did there come a time after the construction of the plant in 1954 when Hooker expanded its facilities for making sodium chlorate at Columbus?

A. Yes. The Columbus plant has been expanded three times. The first expansion was started before the plant was completed, actually, and the second one followed a year after, and the third one a year after that. It expanded three times.

Q. What is the capacity of your plant today?

A. Thirty-two thousand tons.

Q. Would you describe for us the sales force that Hooker uses to market sodium chlorate from its Columbus plant?

A. Yes. Sodium chlorate comes under the Eastern Chemical Division of Hooker. In that division we have 22 salesmen, and they all have some part in selling chlorate from the Columbus plant. However, we do have a specialist, a salesman that is located in Mobile, Alabama, who spends all his time just calling on the pulp and paper accounts in the southeast. Besides a sales force we have about eight other people that spend some time on this work not on sales but in the technical services, and so forth.

[fol. 208] Q. When you referred to the southeast, Mr. Berggren, can you tell us which states you have in mind?

A. Yes. That would be Texas, Louisiana, Arkansas, Mississippi, Alabama, Florida, Georgia, North Carolina and South Carolina, and that is about it.

Q. With reference to sales to pulp and paper companies in those states can you describe for us the size of your sales force?

A. We would have in that area four different salesmen calling in that area.

Q. With reference to sales of sodium chlorate to pulp and paper companies in an area, how many of your salesmen participate?

A. At the present time—We have made some changes—we have just this one man calling on all the accounts. In other words, he is specializing in pulp and paper sales.

Q. Who is this one salesman?

A. C. R. Daving.

Q. Mr. Daving's sales base is located where?

A. Mobile, Alabama.

Q. Mr. Berggren, would you tell us how large a company Olberry was when it built the Columbus, Mississippi, sodium chlorate plant?

[fol. 209] A. It would be approximately $14 million sales, within a million dollars or so.

Q. Was that the size of the Olberry organization at the time of the merger with Hooker?

A. Approximately, yes.

Q. Mr. Berggren, do you personally in your position today call on pulp and paper companies who are customers for sodium chlorate?

A. Yes, I do it quite regularly, in fact.

Q. For how many years has it been a regular part of your business?

A. Pulp and paper, it began in the mid-forties that I started to call on them.

Q. Can you tell us approximately how many pulp and paper companies you called on in connection with solicitations of sodium chlorate sales?

A. Yes, it would be roughly thirty.

Q. In the course of your sodium chlorate solicitation experience has the subject of trade relations ever come up?

A. Yes, I would say it has.

Q. Would you tell the Court what trade relations means?

A. As I understand trade relation, if a company is selling another company a product the other company in turn requires something this other company buys, you buy from them; sort of a trade balance, in other words; purchase [fol. 210] from another company whom you are buying from or selling to rather.

Q. Can you differentiate for us if there is a difference between the practice of trade relations and the practice known as reciprocity?

A. This would be my definition: Trade relations would be, as I said, everything being equal, why you would purchase material from somebody you sell to, and do that willingly. I think reciprocity, probably the way I feel about it would be more or less pressure brought to bear, where everthing may not be equal.

Q. Pressure brought to bear in what way?

A. In other words, you would buy material from a company that you would not normally purchase from, I imagine, if you didn't have to.

Q. Under what circumstances would you buy from a company you would not ordinarily buy from?

A. Not always things are equal, you know, service and soforth. You might have to buy in spite of that.

Q. I wonder if you could give us a hypothetical example of the way in which reciprocity works in order that the nature of the process may be clearly shown to the Court?

A. Assuming a company sold another company a product and gave excellent service, and so forth, then this [fol. 211] other company that they sold to purchased materials that this other company manufactured, it is possible that this company would not want to change its source of supply, the service has been good and so forth. The other company can say, "Unless you purchase from me we will stop buying from you." That is my interpretation of what it could be.

Q. On the basis of your selling experience in the sodium chlorate field do you know, sir, whether the practice of trade relations or reciprocity is a factor in the sodium chlorate business?

A. It is not as far as our company is concerned because we sell or purchase very little from our pulp and paper accounts. In other words, our purchases from them are very small, and our sales are large, so it does not play a part in our sales or purchases.

[fol. 212] By the Court:

Q. How about the railroads?

A. I do not know of anything there. When we ask for rates, lower rates, that is out of my category. I do not really know about it. We do not deal directly with the railroads, anyway, on this railroad weed killing, by the way. It is usually done by another party that buys the chemicals and does the application, so we do not come into contact with them.

By Mr. Freed:

Q. Does the Hooker Chemical Corporation use its purchases from pulp and paper companies as a means to encourage sales of sodium chlorate?

Mr. De Lone: If your Honor please, I object to that question. I cannot see its relevance to this case, what

Hooker Chemical Company uses to get its sales or effect its sales.

The Court: Read the question.

(The question was read by the Reporter.)

The Court: I think you had better clarfy the question, and then you re-state your objection as clarified if it is objectionable.

If the question is: "Do you go to paper companies and say 'If you want us to buy paper you will have to buy [fol. 213] sodium chlorate from us.'"

Mr. Freed: Exactly, your Honor.

Mr. De Lone: I object to that as irrelevant and also as covered by his previous answer. He already said the Hooker Company does not use trade relations in its business.

The Court: What is the relevancy, Mr. Freed?

Mr. Freed: Your Honor, I would like to bring out from this witness the extent, if any, to which the practice of reciprocity or trade relations is used in the business of selling chemical products.

The Court: I understand the witness has said that they do not use reciprocity or trade relations in dealing with pulp and paper industry. I put the question as to railroads and he said no as to railroads.

So far as the objection as to one of cumulativeness, I overrule it. I will evaluate irrelevancies as I hear the testimony.

The Witness: To answer that question, then, as far as Hooker is concerned on sodium chlorate, we have no trade relations. I mean our purchases are so small they are almost insignificant. The fact is it would be embarrassing to even mention it.

By Mr. Freed:

Q. In the course of your activities in selling sodium [fol. 214] chlorate have you encountered situations in which the factor of trade relations is made a part of the discussion or solicitation effort with pulp and paper companies?

Mr. De Lone: In the light of the previous answer I renew my objection.

Mr. Connelly: I would like to add the objection that it calls for hearsay, if your Honor please, the witness having testified——

The Court: What do you have to say about the hearsay objection?

Mr. Freed: Your Honor, the hearsay objection I believe would normally apply to a situation of this kind were it not for the fact that the witness is a man who has been in this business for a great many years, a principal part of whose activities is the solicitation and selling of sodium chlorate, and I believe that he is competent to testify as to the practices that are employed in that business, or the factors.

The Court: If his testimony is going to be based on what someone else told him the practices were, it seems to me it is clearly within the hearsay rule. You could develop as a preliminary matter the basis of his information concerning these practices pursued in the sodium chlorate business.

I will sustain the objection to the question.

[fol. 215] By Mr. Freed:

Q. Mr. Berggren, do you have any knowledge or information concerning the extent, if any, to which trade relations is a practice which is important or involved in the sodium chlorate business?

A. That would be what I have been told. There are a couple of cases where our contracts for this last year were less than they were the previous year, but on what basis the customer used in proportioning out that way, it is hard for me to tell. I was told they——

The Court: Just a moment. That goes to the objection.

The Witness: That was the other question.

The Court: You were told by your customers or the former customers why you lost business to other competitors.

The Witness: Exactly.

Mr. Freed: Your Honor, it is the Government's position that the truth of any declarations made to Mr. Berggren in the course of his selling activities as to trade relations or reciprocity playing a part or being a factor may not be shown by his testimony, but certainly the extent to

which this factor is used in direct contacts with Mr. Berggren as a reason for giving him or not giving him business is something within his own knowledge.

[fol. 216] The Court: It seems to me the only significance the statements could have is to establish their truth. If the statements are not true then it seems to me the testimony is not significant.

I will not permit you to go into this unless you lay some preliminary foundation to show firsthand knowledge.

There is no pending question so you go ahead and put your question. I will rule on the objections.

Do you want a five-minute recess?

Mr. Freed: Yes.

(At this point a short recess was taken.)

Mr. Freed: Does your Honor wish me to proceed with questioning?

The Court: I wish you would proceed with your examination of the witness in any way that you choose.

By Mr. Freed:

Q. Perhaps this is repetitive, Mr. Berggren, but has the subject of trade relations been injected in any of your sales efforts in connection with selling sodium chlorate?

A. I have been told that that is a reason.

Q. In cases in which you have had conversations about the subject has Hooker in fact——

The Court: Conversations with whom, his superiors, or with counsel, or with whom are you speaking now?

[fol. 217] By Mr. Freed:

Q. Conversations with whom are you referring to, sir?

A. The customers.

Q. People in what position in the customer corporations?

A. Purchasing departments.

Q. In those situations in which conversations have related to trade relations or reciprocity has Hooker in fact been affected in its business?

Mr. Connelly: I object to that as calling for a conclusion.

By Mr. Freed:

Q. In such cases has Hooker's sales to these companies increased or decreased?

Mr. Connelly: I make the same objection, it seems to me this can have only one purpose, which is to attempt to get in under the guise of practices what can really be nothing more than hearsay for whatever reasons may be expressed why a given customer may not renew an order.

The Court: It seems to me that the most you can get from this witness is that he talked to a customer about trade relations of reciprocity and his business decreased. It seems to me that the testimony or any such testimony is going to be so ambiguous as to be meaningless.

[fol. 218] Actually what you are trying to establish, I take it, is that the witness has lost business because in fact this trade relation or reciprocity method of doing business has persisted between customers of Hooker and competitors of Hooker.

It seems to me if you are going to prove it you ought to prove it by people who have firsthand knowledge of the fact, which would be the customers, that some of these conversations went on in the presence of Mr. Berggren.

I sustain the objection.

By Mr. Freed:

Q. Have any conversations which related to trade relations between pulp and paper customers of your company and competitors of your company taken place in your presence?

A. No.

Mr. Freed: Your Honor, the Government is in agreement with your analysis of what it is trying to prove and the evidential problems involved. It was our contention that there are two ways in which to put in the influence of trade relations on sodium chlorate business. One is to produce representatives of the industry to testify about their actual use, the actual use in the case on each customer of trade relations. The alternative way, which we contend is permissible for an expert in the business, is for someone [fol. 219] who is completely familiar with the selling of

sodium chlorate to testify about the experiences and the problems that he encounters in attempting to sell sodium chlorate.

The Court: It seems to me that this area of testimony is essentially fact testimony. Hooker lost business which it had because its customers were prevailed upon by competitors to buy from them through the use of trade relations or reciprocity. It does not take an expert to testify to that. The customer would not have to be an expert to testify to it. That is my reaction to proving this general subject matter in this area.

You ask your question and I will rule on it.

By Mr. Freed:

Q. Mr. Berggren, you previously testified to the sales force that Hooker has in selling sodium chlorate. I believe you mentioned also the technical force. Would you tell the Court what kind of technical services Hooker renders in connection with its sale of sodium chlorate?

A. Yes, we have a Dr. Rapson who is considered an expert on chlorine dioxide bleaching and generation as a consultant. Then we have a gentleman that is full-time manager of Pulp and Paper Technical Service. Then we have two men in market development that spend a part of their time on the problems along this line. We have an- [fol. 220] other three men in market development that spend part of their time on certain problems in this field. Then we have two agronomists out in the field selling sodium chlorate, who not only sell, but they are also technical service people.

Q. In terms of full-time employees with the full time of employees being devoted to technical services can you tell us how many full-time men on an equivalent full-time basis Hooker has?

A. I would say between three and four full-time men on technical service.

Q. You made reference earlier, sir, to the sale of a minor volume of chemicals in the south. Would you tell us how large Hooker's sales in the south apart from sodium chlorate are today?

A. I would not have that exact information. All I could say in a general way is that they would be small, because

one other salesman, outside of this expert on pulp and paper sales, handles the whole southeast, so sales are small and the volume is small. They are on a variety of minor chemicals.

Q. Your testimony is that there is one salesman who devotes himself to the pulp and paper sales in the southeast?

A. Yes, and another industrial salesman who covers approximately the same area as this fellow does.

[fol. 221] Q. In sales of chemical other than sodium chlorate?

A. Yes, that is right.

Q. In what geographical area or areas have you personally sold or solicited sales of sodium chlorate?

A. I would say the entire United States, outside of the northwest.

Q. Who are Hooker's competitors in the sodium chlorate business?

A. Well, American Potash, Pennsalt, and Olin Mathieson.

Q. Can you tell us the area or areas in which competition from Pennsalt has been encountered?

A. From Pennsalt, yes, we have encountered them in the midwest and in the area I spoke about earlier. The agricultural area in the midwest, Kansas, Nebraska, Iowa, and those states; and in the uranium area we mentioned earlier, Colorado and Wyoming.

Q. Have you encountered Pennsalt in any other areas?

A. We have encountered them in one account in the southeast.

Q. Can you tell us, sir, for how long a period of time Hooker has encountered Pennsalt as a competitor in sodium chlorate?

A. Well, that is a little difficult to answer. I would say in the midwest the last six years.

[fol. 222] Q. In the uranium industry?

A. Well, about the last three years when we started to develop some business out there ourselves. They were already in there.

Q. From which shipping point does Hooker sell sodium chlorate to the midwest and the uranium states?

A. To the uranium area it is all shipped from Columbus,

Mississippi, and most of it to the argicultural area in the midwest is from Columbus also.

Q. Have you made any sales to the West Coast of sodium chlorate?

A. Yes, we have. The last three years we have shipping to southern California.

Q. Where did those shipments emanate from?

A. Columbus, Mississippi.

Q. Can you give us a dollar volume figure or quantity figure for those shipments west?

A. Yes, I can give you that. In 1960 there were 1700 tons shipped to southern California.

Q. Approximately how large are these sales to the uranium states of the west?

A. Are you speaking of our sales?

Q. Yes, sir.

A. Roughly, a thousand tons.

[fol. 223] By the Court:

Q. A thousand tons a year?

A. Yes, annually.

By Mr. Freed:

Q. Mr. Berggren, has your plant at Columbus, Mississippi ever operated at capacity?

A. Yes, it has. It has usually operated at capacity since it was built.

Q. Is it operating at capacity at the present time?

A. At the present time it is.

Q. Is the full output of the Columbus, Mississippi, plant presently being sold?

A. No. We are stockpiling a considerable tonnage right now.

Q. Have you always stockpiled a considerable tonnage or is this a new development?

A. No, we have in off seasons stockpiled considerable tonnage. In other words, the agricultural use is seasonal. As a result we do stockpile a considerable quantity in the off season.

By the Court:

Q. Do your annual sales from the Columbus plant equal your annual production?

A. Almost. Last year, 1960, was 29,500,000 pounds [fol. 224] sales against 30,500,000 pounds production.

Q. You wouldn't want it to run much closer than that?

A. The closer the better, of course, in an operation like that; but we would not complain on an operation like that.

By Mr. Freed:

Q. Has there been any change in the success of your selling efforts within the past year?

A. Well, we have had to increase our selling efforts, not only selling efforts, but service. We have increased our sales and service. We are going to put in facilities for pulp and paper research.

Q. Has there been any change in the level of Hooker's sales of sodium chlorate to pulp and paper companies in the southeast within the past year?

A. There is a slight decrease from 1960, yes.

Q. In the selling efforts in which you have been engaged within the past year has there been any indication of a change in Hooker's expected sales of sodium chlorate in the southeast?

Mr. De Lone: Might I have that question read?

(The last question was read by the Reporter.)

Mr. De Lone: I object to that, sir. Has there been any indication of a change? I should gather we are going [fol. 225] to ask him to make some sort of prognostication. We certainly ought to know on what basis we are going to have such a prognostication before the ultimate question is asked.

The Court: I overrule the objection. You can develop the infirmity on cross-examination.

By Mr. Freed:

Q. Have you begun soliciting sales of sodium chlorate for 1962 delivery?

A. Not yet, but we do that in the contract season, and that is about to begin. We have not started yet.

Q. Have you had any preliminary efforts in the direction of selling sodium chlorate for the coming year?

A. I have just made some estimates on my own as to what the tonnage would be.

Q. What did those estimates show?

A. It showed that there would be a slight decrease in 1962.

Q. Can you tell us the basis on which you estimated a decrease for 1962?

A. I think the new production is going to have an effect. I mean the very fact that there are new plants coming in will naturally have an effect on our sales.

By the Court:

Q. What do you mean by new production?

[fol. 226] A. Well, the plant at Calvert City will be a new producing plant.

Q. You mean the Penn-Olin plant?

A. Yes. And then there is another plant also.

Q. Which is that?

A. That is the Columbia Southern plant in Louisiana, in Lake Charles.

By Mr. Freed:

Q. In making your estimates for 1962 have you reached any conclusions with respect to the ease or difficulty that Hooker will have in selling the full capacity output of its Columbus plant?

A. We would be very happy if we could sell in 1962 the capacity that we have. We do not anticipate we will.

Q. In light of your last statement have you made any plans in terms of the scope of your sales operations to compensate for any change in sales forecasts?

A. We have not made any further changes in the last few months, but we did some time ago rearrange our selling force, the pulp and paper salesmen specialists, and we have hired a pulp and paper manager for our service department, pulp and paper service department.

Q. Have you made any change in plans with respect to

the geographic areas in which you will market the ouptut [fol. 227] of your Columbus plant?

A. No definite plans have been made that have not been in effect for the last year.

Q. Can you tell us whether any change in plans is being considered in respect to the geographical scope of your sales activities?

Mr. De Lone: Objected to, sir. In the light of his previous answer that they have not made any changes I can't see any relevance to what they may be thinking about doing some day in the future.

The Court: I overrule the objection.

By the Court:

Q. Do you want the question read back?

A. Yes.

(The question referred to was read by the Reporter as follows:)

"Question: Can you tell us whether any change in plans is being considered in respect to the geographical scope of your sales activities?"

The Court: I wonder what some significance of some mental operation may be? Maybe they are being considered, maybe they are not, and what conclusion will be arrived at as a result of such consideration. It seems to me your are getting into a very conjectural speculative [fol. 228] area. I sustain that objection.

We will take a five-minute recess.

(At this point a brief recess was taken.)

By Mr. Freed:

Q. Mr. Berggren, in the manufacture of sodium chlorate what are the important cost elements?

A. Electric power is number one, and the principal one, and I would say sodium chloride and transportation would be second.

Mr. De Lone: Would you read that last answer?

(The answer was read by the Reporter.)

By Mr. Freed:

Q. Would you re-state your answer as far as cost elements are concerned?

A. Yes. We are talking about cost of producing sodium chlorate?

Q. That is correct.

A. Electric power is number one cost.

Q. With respect to the cost——

By the Court:

Q. What other important elements are there that you mentioned earlier. Sodium chloride?

A. And the transportation of sodium chloride.

Q. And the transportation of sodium chloride?

[fol. 229] A. That is correct.

By Mr. Freed:

Q. Is sodium chloride salt used to produce sodium chlorate?

A. That is correct.

Q. With respect to electricity would you tell us how you contract for electricity to operate your plant?

A. To my knowledge we contract a year in advance or more than a year in advance for the power.

Q. What is the basis on which you calculate the volume of power for which you will contract?

A. That is done on the basis of how you expect to operate, at what rate you expect to operate for that period of time.

Q. And are your calculations made on the basis of capacity or some other basis of operation?

A. Capacity.

Q. If your sales fall below capacity can you tell us how that may affect the power costs of operating your plant?

A. It definitely would affect our costs, because you would be paying for power that you contracted for and are not using.

By the Court:

Q. You contract for your power on a flat rate regard-
[fol. 230] less of a certain minimum?

A. There are certain minimums that you contract for.

Q. And the minimum is based on an assumed full production?

A. Well, we try to estimate our capacity or production before we contract.

Q. But your minimum is not based on your estimate or is your minimum based on the estimate? Is this something that is subject to a written contract of some sort?

A. Yes, it is.

Q. Have you seen it?

A. No, I have not. I am not that familiar with it to discuss it actually.

By Mr. Freed:

Q. At the present time are you committed to pay for power for capacity operation irrespective of whether the plant operates at capacity operation?

A. Whether we have to pay for the capacity of the power I am not familiar. I am not that sure of the contract.

Q. In the event that your current sales activity does not match the capacity ouput of the plant would you continue to stockpile sodium chlorate?

A. To a certain minimum. I mean when our storage capacity is filled then we have to do something about it, [fol. 231] Mr. Freed. To cut back production could be costly.

Q. Is there an alternative to cutting back production if you were unable to continue to sell capacity in your present market areas?

A. Unless we can sell it in other areas.

Q. Have you given consideration to selling sodium chlorate in other areas?

A. We are giving it consideration, yes.

By the Court:

Q. How about cutting the price? Mightn't you be able to move it if you did that?

A. It so happens that cutting the price of sodium chlorate will not increase its demand.

Q. Not the over-all demand, but it might increase your opportunity to sell, might it not? If you gave it away—you can give it away. no doubt, against any competitive effort; wouldn't that be so?

A. I would say so, yes.

[fol. 232] By Mr. Freed:

Q. Mr. Berggren, have you given any consideration to increasing the sale of sodium chlorate in areas outside the Southeast?

A. Well, it is just now being considered. We are going to sell in all areas of the United States that we can get business.

Q. Have you given any consideration, Mr. Berggren, to the relative economics involved in selling your capacity throughout the United States or operating at less than capacity in a more limited geographical area?

A. Well, that is a possibility. In other words, if you can't sell to capacity, then you have to cut back your production. But sometimes it is not always easy to sell in other areas where transportation over long distances becomes a problem and deliveries and on schedule, and so forth.

Q. Have you made any studies to determine whether it would be to the advantage of your company to increase its sales in distant areas as opposed to cutting back on production or selling in closer areas?

A. We are considering that; we are giving it consideration. If we can't increase our sales, we will have to cut back. There is no other alternative.

[fol. 233] Q. Have you made a determination where you will attempt to sell sodium chlorate in the Western part of the United States instead of cutting back on production for sale closer to Columbus?

A. We have been giving it consideration but have no

definite plans as to how we are going to go about it yet. No active campaign has been initiated.

Q. Mr. Berggren, has Hooker sold any sodium chlorate to Olin Mathieson?

A. Yes, we have, for a good number of years.

Q. From which plant of Hooker have shipments of sodium chlorate been made to Olin?

A. From the Niagara Falls plant.

Q. Has there been any change in Hooker's sales of sodium chlorate to Olin within the past few years?

A. We have sold them less this year than we did last year. Of course the year is not over with. I don't know how much it will come to.

Q. Can you give us the magnitude of sales in 1960 by Hooker to Olin?

A. At the rate we have shipped in 1961 for the nine-month period of '61, it is at the rate of 50 per cent of what we did in 1960.

Q. And have you made any projections with respect [fol. 234] to Hooker's sales of sodium chlorate to Olin for 1962?

A. We haven't included them in our estimate, no.

Q. Can you tell us why you have not included them?

A. We just feel that with their own plant they will be supplying their own requirements.

Q. Can you give us, sir, any measure of the importance of Olin as a customer for Hooker's Niagara Falls sodium chlorate plant?

Mr. Connelly: I will object to the question as calling for an extremely broad conclusion unless there is some definition of what counsel means by "importance".

The Court: Well, I had assumed that your question, Mr. Freed, called for some sort of a percentage of sales which were being taken by Olin Mathieson, something of that sort.

Mr. Freed: I would hope that the witness would explain the basis.

The Court: I will overrule that objection.

A. I could answer it this way, that they are our largest customer on sodium chlorate out of our Niagara Falls plant as of 19—well, that would be true for this year as well.

Q. Did you say, sir, that Olin is the most important [fol. 235] customer for the Niagara Falls plant?

Mr. Connelly: I object to that again.

Mr. Freed: Would you read the answer, please?

(The Reporter read the following:

"Answer: I could answer it this way, that they are our largest customer on sodium chlorate out of our Niagara Falls plant as of 19—well, that would be true for this year as well.")

By The Court:

Q. You started to say for nineteen something or other?

A. I was going to say 1960, but 1961 would apply as well.

Q. Do you have any idea what percentage of your production was taken in 1960, will be taken in 1961, by Olin Mathieson, of sodium chlorate from your Niagara Falls plant?

A. Percentagewise it would be very small. I couldn't tell you what the percentage would be, but it would be very small, percentagewise.

Mr. Freed: Your Honor, I believe that data which has already been stipulated to by the parties will disclose that information.

By Mr. Freed:

[fol. 236] Q. Mr. Berggren, is Hooker continuing today to sell sodium chlorate west of the Rocky Mountains?

A. Yes, we are.

Q. Does your company have any plans with respect to continuing or abandoning sales of sodium chlorate to the western part of the United States?

A. We don't have any plans of abandoning it. We have plans to increase our activity. We haven't initiated them as yet.

Q. And from which shipping point will those sales emanate?

A. Columbus, Mississippi.

Mr. Freed: Would your Honor indulge me a moment?

The Court: Yes.

Mr. Freed: The Government has no further questions, your Honor.

[fol. 237] Cross-examination.

By Mr. De Lone:

Q. Mr. Berggren, I understand from your testimony that quite recently Hooker has revamped its sales effort with reference to sodium chlorate. Is that correct?

A. Just making a specialist out of one of the salesmen that was in that area, making him a pulp and paper specialist. That was the major change, yes.

Q. You are going to put in research facilities for pulp and paper customers which you did not have before?

A. That is right. We are putting in a pulp paper laboratory. That is in the works.

Q. You are giving consideration to whether you will attempt to market your product more broadly west of the Rocky Mountains. Is that right?

A. That is correct.

Q. What is it that has induced you to take these steps?

A. To keep our plant operating as near capacity as possible.

Q. In the past few years it did operate at capacity, did it, until your current projection?

A. Very near capacity, yes.

Q. Your projections for what, 1961 or 1962?

[fol. 238] A. We are talking about Columbus, Mississippi, now,

Q. That is right. I understand you are talking mainly about Columbus.

A. That is right.

Q. Your projections, is it your projections for 1962 which contemplate the possibility you will not work at capacity?

A. Our projection for 1962.

Q. These efforts are to fill out your production from Columbus so it will be at full capacity?

A. As near capacity as possible. That is right.

Q. What is it that has brought you to the conclusion that you will not sell as much in 1962 as you did in 1961, or as you seem to be selling in 1961 so far?

A. Two new producing points is the answer to that.

Q. One of them is at Penn-Olin's plant at Calvert City?

A. Right.

Q. That is the first to come actually on stream of these two new plants to which you have reference?

A. That is right.

Q. The second is a plant of the Pittsburgh Plate Glass at Lake Charles, Louisiana?

A. That is right.

[fol. 239] Q. When do you anticipate this will have any impact on your sales potential?

A. We think the latter part of 1962.

Q. Then the year 1962 is the first when you have felt this impact from Penn-Olin, or think you will feel it. Is that right?

A. We have felt it a little this year, 1961.

Q. Not to the extent of preventing you from selling at your capacity production from Columbus, Mississippi?

A. We have been running the plant at capacity, but we have stockpiled considerably in the last few months.

Q. Prior, then, to the current year you made reference to a Pennsalt customer or some knowledge of a Pennsalt activity in Florida. What were you referring to?

A. Right. Shipments made to Foley, Florida.

Q. That is the plant of the Buckeye Company?

A. That is correct.

Q. Was that the only time that you felt Pennsalt in the southeast, prior to Penn-Olin?

A. Talking about pulp and paper now?

Q. Yes.

A. Yes. That is correct.

Q. That had no impact on your ability to sell your total production from Columbus. Is that right?

[fol. 240] A. No.

Q. Except this isolated matter at Foley, Florida?

A. That is right.

Q. In addition to streamlining, if that is the correct word, your sales force and augmenting your technical services, and considering the possibility of more broadly marketing your product, have you not also since Penn-Olin was announced endeavored to sign up five-year contracts for your customers?

A. That is correct.

Q. That, plus these other items, were measures which Hooker has taken to meet the competition from Penn-Olin. Isn't that right?

A. That isn't exactly all that is connected with it. We attempted or at least I attempted the year previous to offer these five-year contracts with ceiling prices to protect our customers because they seemed quite concerned as to what the price of chlorate was going to be in the next few years. Actually quite a few of our accounts were thinking of converting, were concerned what the price of chlorate might be two or three years hence because that could affect their decision to go into chlorine dioxide bleaching.

Q. Is it a fact that that price has been substantially the same for the last three or four years, there has been no price increase in sodium chlorate in the territory which you [fol. 241] have been selling?

A. That is correct. Yes.

Q. And, in fact, it was higher back in 1954 when you built your plant at Columbus, Mississippi, than it has been since that time. Isn't that also correct?

A. That is true.

Q. Again turning to the five-year contracts who is Mr. Wilcox?

A. He is the secretary of the company, and legal counsel.

Q. I call your attention to a letter from Mr. Wilcox to the Department of Justice in which this question was asked:

"What measures has Hooker taken to meet Penn-Olin competition?"

A. Right.

Q. This is Mr. Wilcox's reply, July 24, 1961.

"We have provided——"

Mr. Freed: Your Honor,——

The Court: Just a moment.

Mr. Freed: I object to the counsel reading of this letter into evidence, not on the grounds of any facts stated therein but rather on the grounds of the basis upon which the letter and the information contained in it were turned over to counsel.

[fol. 242] As your Honor will recall there was a large

category of information turned over to the department on a confidential basis, and the parties undertook to reach an agreement with respect to that material which could be used so as not to prejudice any third party to this case.

The Government would like to record its objection at this time to compromising the basis upon which third parties disclosed confidential information to the Government, and the Government in turn disclosed that confidential information to counsel for the defendants, but not defendants themselves.

The Court: As I understand it, this letter is not one which is in evidence.

Mr. Freed: That is correct.

Mr. De Lone: So that——

The Court: What do you have to say to this objection to the use which you make of this letter?

Mr. De Lone: My purpose is to pose a question which incorporates an answer previously given which does not, as I understand our discussions with counsel for the Government and counsel for Hooker, in any way involve the areas of confidentiality which have previously been involved. I am referring only to question and answer number fifteen.

The Court: Why don't you show Mr. Freed exactly what portion of that letter you propose to use in your question.

[fol. 243] Mr. De Lone: I did not have any purpose to offer the document itself in evidence apart from this reason.

Mr. Freed: I wonder if counsel for Hooker, who is present in the courtroom, just for the purposes of protecting his company's interest in trade secrets and confidential data might have an opportunity to examine the letter, because the only objection, as I said, the Government has is to third parties.

The Court: Show Hooker's counsel the portion of the letter you propose to read as the basis for your question.

(Pause)

Mr. De Lone: I may state to the Court that counsel for Hooker has no objection to my continuing with the question that I started so far as this particular item in the letter is concerned.

The Court: Begin your question anew, if you will.

By Mr. De Lone:

Q. Mr. Berggren, I call your attention to the letter from Mr. Wilcox, whom you previously have described, to Mr. Kirkpatrick, the Department of Justice, dated July 24, 1961, which reads in part:

"Question: What measure has Hooker taken to meet Penn-Olin competition?"

And the answer:

[fol. 244] "We have provided more intensive sales coverage by the addition of two salesmen and have increased our technical service effort by the addition of one technical service man. We have offered pulp and paper manufacturers a firm price for a period of five years and have made available to them without royalty a license of Hooker's new chlorine dioxide generating process and certain other patents useful in pulp and paper manufacturing."

Can you tell me whether to your knowledge that answer is correct with reference to both these five-year contracts and to the other matters recited in the answer?

A. Well that report was made by a market analyst of ours, and I had nothing to do with that being prepared.

Q. I simply want to know whether it is accurate. That is all. If it is not you could tell me so.

A. I would gather they felt from that—they felt the only reason it was done, you know what I mean, but there were other reasons.

By the Court:

Q. Would you like to look at the letter?

A. I recall it.

Q. Any paper you are examined on and you would like to see——

[fol. 245] A. I recall it very well.

Q. —you make it known, your desire, and it will be placed in front of you.

A. As I mentioned before this five-year contract with a firmer price was almost put in effect a year previous,

part of it we didn't get an O.K. on in time to offer it that year. We think it is service to the customers, they know what the price is going to be five years hence. That was quite a concern to them, and that is one reason.

The Court: Just a moment.

Mr. Freed: I wonder if the Reporter would read back the answer because I couldn't hear.

The Court: Read the question and read the answer.

(The question and answer were read by the Reporter.)

By Mr. De Lone:

Q. Do I understand from your answer, then, that in addition to it being a measure to meet Penn-Olin competition there were these other considerations of stability of price to the customer which induced you to make these five-year offerings?

A. Yes. That is correct.

Q. I take it from what has happened to your projections for 1962 that you were not successful in all instances in obtaining a five-year contract?

[fol. 246] A. We obtained several. Yes.

Q. Several. If I might go back a moment, your technical service force which you described earlier, I take it you feel this is an essential to doing a good selling job in sodium chlorate, to have a good technical service force?

A. We feel that way, yes.

Q. With reference to the southeastern territory, as I understand it your current arrangements, you have only one salesman who is full time on sodium chlorate in the southeast?

A. In the southeast. That is right.

Q. Where is he located?

A. Mobile, Alabama.

Q. Are his initials "C. R. D."?

A. "C. R. D.," yes.

Q. You also have a salesman in Mississippi, and one in North Carolina, have you not?

A. That is correct.

Q. Their principal job, I take it, is not the selling of sodium chlorate?

A. It is becoming less and less for them as far as the pulp and paper industry is concerned.

Q. Previous to the reorganization that you have referred to, these recent efforts to streamline your setup, had all three of these salesmen concerned themselves with [fol. 247] sodium chlorate?

A. That is correct, in all industries; with all industries in their area.

Q. I assume that to the extent the gentleman in Mississippi or the one in North Carolina learned of the need of sodium chlorate from calling on customers they are willing to discuss it with the customer?

A. That is one of their jobs. Yes.

Q. When you erected the plant in Columbus, Mississippi, which came on stream, I think, in 1954——

A. That is correct.

Q. —was it the projected demand in the southeastern area for the pulp mills that induced you to move your plant down there or to erect a plant there?

A. That is right.

Q. The power rate was cheaper than Niagara?

A. That is correct.

Q. And the rate costs to the pulp mills were much less than from Niagara Falls?

A. We felt from our survey that kraft mills in the southeast were the most logical ones to go to chlorine dioxide first.

Q. The pulp mills in the southeast were?

A. Yes.

[fol. 248] The Court: You nodded your head or I think you nodded affirmatively that the freight rates were cheaper Mississippi to the pulp industry in the southeast than from your Niagara Falls plant.

The Witness: Yes, much cheaper.

Mr. De Lone: Thank you, sir.

By Mr. De Lone:

Q. In addition to these factors the location of a plant in reasonably close proximity to the pulp mill customers put you in a position to give them better service, does it not?

A. No question about that.

Q. Were you endeavoring by locating your plant there to persuade the southern pulp mills to convert to chlorine dioxide generation so they would consume large quantities of sodium chlorate?

A. Originally it was a matter of economics.

[fol. 249] Q. It was a matter of economics?

A. Whether they converted over from their conventional methods of bleaching to chlorine dioxide, that's right.

Q. And insofar as the customer was considering whether to install a chlorine dioxide generating system in his pulp mill in the Southeast, a consideration of course was the cost of the sodium chlorate to the customers?

A. That is correct.

Q. And with a plant in the Southeast and the lower freight costs, this gave the customer, at least in his decision, some assurance about this supply and the cost of this supply of sodium chlorate, is that correct?

A. That is correct.

Q. Now, there has been some reference to your shipments to the West Coast, west of the Rocky Mountains. Am I correct in understanding that so far as shipments in bulk to California are concerned you ship to only one customer there?

A. In bulk, that is correct.

Q. You don't ship any packaged to California, do you?

A. Not to California.

Q. Sir?

[fol. 250] A. No, that's correct.

Q. So that we are clear on what we mean by bulk, bulk means in tank cars or in hopper cars, is that correct, Mr. Berggren?

A. That is correct.

Q. And the way in which sodium chlorate is packaged for sale to various trades is in drums?

A. Non-returnable steel drums, that's correct.

Q. Now, this one customer in California, is that a pulp mill?

A. No, it is not.

Q. For what purpose do they use the produce? And if there is no mystery about the customer, I simply don't want to breach——

A. It is used as a herbicide, both agricultural and railroad.

Q. Would you prefer not to mention the name of the customer because I will not ask you if you would prefer not to?

A. It would be perfectly all right.

Q. You say it is perfectly all right?

A. It is all right.

Q. That company then, as I understand it, is U.S. Borax?

[fol. 251] A. That is correct.

Q. And they use the product as a herbicide and in the agricultural chemical field?

A. That is right.

Q. And this is what you described earlier as a somewhat seasonal demand, is it, the demand that they have?

A. That's right. I am not too familiar about their seasons out there. It varies from the Mid-West. But normally it is. It may be a different season from what we have in the Mid-west—in other words, it may be later.

Q. Well, now, from what you said earlier I gather that a pulp mill is concerned about service in terms of the ability to make prompt delivery after an order is placed, is that correct?

A. That is correct, yes.

Q. And this is an important service consideration to you and was in locating in Columbus, Mississippi?

A. That is correct.

Q. Now, do I understand that with reference to the Borax Company this is not much a consideration, they are able to wait for their shipments because you can schedule tied in to their seasonal demand basis?

[fol. 252] A. Well, they formulate a product and apparently they do store their finished product, or maybe they store their unfinished product, too.

Q. So that in this instance of this one customer the service feature in terms of being able to make prompt delivery from the plant is not a significant item, is that correct?

A. We have had no complaints. We have shipped promptly. Of course the distance is considerable.

Q. And in light of the seasonal nature of some part of the sales is it of advantage to you to keep your freight cars busy? You own a number of freight cars, I assume?

A. Tank cars, yes.

Q. Tank cars?

A. Yes, we do.

Q. And if they are not moving elsewhere it is desirable to have them make a trip and get the allowance from the railroad for making the trip rather than be idle, is that correct?

A. Correct.

Q. I understand, taking the year 1960, that the only sales you made west of the Rockies were to this one customer in California, U.S. Borax?

[fol. 253] A. That would be outside of the uranium area there, we did move stuff in west of the Rockies; it reached Salt Lake City, if you want to talk about that. That would be considered west of the Rockies.

Q. Well, of course, to the extent we are talking about Colorado you have both sides of the Rockies?

A. Yes. If you restrict it to California, one account.

Q. You have also made some shipments to Montana. Is that to the same customer?

A. That is correct.

Q. In 1960 some two hundred tons?

A. That is correct.

Q. You have made no other bulk shipments west of Texas, have you, besides those shipments to Borax in California and shipments to Borax in Montana?

A. You are talking about 1960 and '61?

Q. Yes.

A. No, we have not.

Q. And in Texas you shipped a little over a thousand tons in 1960, half of it roughly to Borax at Fort Worth?

A. That is correct.

Q. And half of it roughtly to a pulp mill located in the [fol. 254] Eastern part of Texas?

A. That is correct, yes, sir?

Q. Is Fort Worth also in the eastern part, or are you not able to define Texas because it is so big?

A. Well, I will put it on the eastern part. I don't want to be criticized for it.

Q. Now, the sales to the uranium industry which you commented on earlier, they are all made in packages, not in bulk, in drums not in bulk, is that right?

A. In large drums, that's right.

Q. You made no mention in the course of your testimony of the use of sodium chlorate to make ammonium perchlorate. Is that not another use of the product?

A. That is correct.

Q. Was that an oversight? I simply wanted to call it to your attention.

A. It wasn't asked.

Mr. De Lone: I have no further questions.

By Mr. Connelly:

Q. I have just one or two questions.

You mentioned on direct examination the sale of sodium chlorate to Olin Mathieson in connection with deliveries from your Niagara Falls plant?

A. That is correct.

[fol. 255] Q. To what plant of Olin Mathieson were those shipments made?

A. It was made to their plant in Niagara Falls—the fact is, just down the street from us.

Q. It was practically——

A. Next door.

Q. —next door to your Niagara Falls plant?

A. Correct.

Q. And you know, do you not, that Olin purchased that sodium chlorate for its use in connection with the manufacture of sodium chlorite?

A. Yes, I am familiar with that.

Q. Is it correct to state that at least at one time sodium chlorite was in a sense a competitive product so far as the bleaching of paper pulp is concerned?

A. Yes, in a minor way, in the early stages it was used in competition.

Q. And are you familiar with the general market for sodium chlorite today, as to whether it is declining or increasing?

A. I am familiar in a broad way with some of the markets, yes.

Q. And you know that the market is decreasing for sodium chlorite, do you not?

[fol. 256] A. I wasn't positive of that.

Q. In any case, you are aware of the fact that the purchases made by Olin of sodium chlorate for use in the production of sodium chlorite will depend, will they not, upon the volume of sodium chlorite being sold?

A. That is correct.

Q. Following the establishment of your Mississippi plant was any change made in the productive capacity of the Niagara Falls plant?

A. Well, the capacity at Niagara Falls is less now than it was at the time the Columbus plant went into operation.

Q. What has happened to bring that about?

A. Actually it is due to the fact that our costs being higher at Niagara Falls, we can ship in closer to Niagara Falls and we don't need that production up there.

Q. In other words, you have been consciously reducing the capacity of the Niagara Falls plant with the thought that that can be more economically handled from your Mississippi plant?

A. Yes. We do, of course, ship to points where it would be cheaper to ship from Columbus, but we have to consider the transportation, the distances, and that is one reason why we are making as much as we are up there.

[fol. 257] Q. And is it generally speaking true that you are reducing your capacity at the Niagara Falls plant with the thought that that will be taken care of by your capacity and production in your Mississippi plant?

A. Well, we won't reduce it entirely, or we won't reduce it any more than we have to now.

Q. I am asking solely about the reduction that has taken place?

A. It has come from Mississippi, that is right.

Q. It is to be provided for by the Missippi production?

A. That is right.

Mr. Connelly: That is all I have.

Mr. Potter: I have no questions on behalf of Penn-Olin.

The Court: Any redirect examination?

Mr. Freed: The Government has no questions, your Honor.

The Court: The witness is excused by both sides, I take it.

* * * * * * * *

[fol. 258] ALVIN J. DIRKSEN, called as a witness by the Plaintiff, being first duly sworn, testified as follows:

Direct examination.

By Mr. Copley:

Q. Mr. Dirksen, by whom are you employed?

A. American Potash and Chemical Corporation.

Q. And what is your position with AmPot, as we will call it in this case?

A. Eastern General Sales Manager.

Q. What chemical products of AmPot come within your responsibility?

A. Our entire line of industrial and specialty chemicals.

Q. Including sodium chlorate?

A. Yes, sir.

Q. How long have you held this position?

A. Approximately five years.

[fol. 259] Q. And prior to that what was your position with AmPot?

A. Manager of our Market Development Department.

Q. Was this your first position with AmPot or were there others farther back?

A. I was hired as Eastern Representative in the Market Development Department. Approximately six months after being hired I was named to this position as Manager of the Market Development Department.

Q. Does your experience with sodium chlorate extend beyond your employment with AmPot?

A. Very superficially.

Q. In what respect?

A. In an approximate two-year association with Oldbury Electrochemical Company in its research activity.

Q. What period of time are we talking about?

A. That is from about June, 1941, to September, 1943.

Q. From 1943 to the time you came with AmPot could you briefly trace your employment history?

A. I spent approximately one year with the Manhattan District of the Metallurgical Lab, University of Chicago, and then subsequent to that about nine years with Phillips

Petroleum and Phillips Chemical Company before joining [fol. 260] American Potash.

Q. When did you first have a responsibility for marketing chemicals?

A. I would say beginning approximately late 1943—forgive me, in 1944, when I joined Phillips Petroleum Company.

Q. Turning now to American Potash's sodium chlorate activities, could you tell us how American Potash first entered the sodium chlorate business?

A. The company entered the business through acquisition of Western Electrochemical Company.

Q. What period of time are we talking about?

A. If my memory serves me correctly, we are talking about six years this January 1—in other words, about January, 1955.

Q. And this was Western Electrochemical's plant at Henderson?

A. Henderson, Nevada.

[fol. 261] Q. At the time you acquired the Henderson, Nevada, plant who was selling its output?

A. The Solvay Process Division of Allied Chemical & Dye Corporation.

Q. And today who is selling its output?

A. The combined effort of our own marketing group and Solvay Process.

Q. Approximately how much of the output does AmPot itself market?

A. Would you elaborate on the question, please?

Q. You stated that initially Solvay was selling the output from Henderson. Now you say it is the combined efforts of AmPot and Solvay. I would like you to put a comparative basis to that if you could. How much of the output of the Henderson plant approximately is AmPot selling today?

A. I am not able to equate this in terms of percentage of effort on their part or our part. It is a joint marketing effort involving both the direct sales function and the technical service function.

By the Court:

Q. I am not sure whether you understand the question as I think it was intended to be understood. As I got it, part of your product is sold or marketed by AmPot exclusively through its own sales organization and part of the [fol. 262] production is being marketed through the joint effort of Solvay and AmPot.

The Court: What you would like to compare, as I understand, Mr. Copely, is the percentage which is marketed by the AmPot organization as against the percentage which is marketed by the joint effort.

Maybe you did understand it that way. I thought you were limiting your consideration to the joint effort and trying to equate it within the periphery of the joint effort. That is not what is intended. It is the AmPot organization versus joint effort.

Mr. Copley: My question is more directed to AmPot versus Solvay or AmPot alone making sales versus Solvay making sales on behalf of AmPot.

The Court: All right. Forget what I have said.

The Witness: Let me attempt to clarify myself if I have confused you. We have a contractual arrangement with Solvay Process which appoints them as an exclusive distributor in the sale of sodium chlorate, and for any sales that are accomplished they are entitled to the contractually arranged commission; so that it is for this reason that I am unable to differentiate between the effort that we put in and the effort that Solvay contributes to his selling program.

[fol. 263] By Mr. Copley:

Q. Can you trace or is it possible to trace the sales to determine who made the sale, whether it was Solvay or AmPot, regardless of who gets the commission?

A. It is very difficult.

By the Court:

Q. I think I am a little confused. I should suppose that someone in your organization would know what your total sales were during any given period of time?

A. I know what our total sales are.

Q. And that someone in your organization would be able to say that Solvay is paid a commission on a certain percentage of that total?

A. They are paid a commission on all sales that are made, your Honor.

Q. Whether made by your——

A. Whether made by my efforts or by Solvay's efforts.

Q. And you have no record—I am not asking you about your own memory, but within your organization you have no record which would show what was made by your efforts and what was made by Solvay's efforts?

A. We have no way of assigning a quantitative designation to the part that we play or they play in accomplishing a sale or total sales.

[fol. 264] Q. You both have contacts with a given customer?

A. Right.

Q. And sometimes it is as a result of the effort of one and sometimes as the result of the effort of the other and sometimes as a result of your joint efforts?

A. That is right.

By Mr. Copley:

Q. When did AmPot construct its plant at Aberdeen, Mississippi?

A. I believe it was brought on stream in about the third quarter of 1958.

Q. At the time that the sodium chlorate plant at Aberdeen was installed and brought on stream did AmPot have any other plants at Aberdeen?

A. No, we had no other operation.

Q. What were the factors which led you to choose Aberdeen?

A. A growing market for the product, relatively low cost power, and very high freight cost for shipments from Henderson, Nevada.

Q. What was the initial capacity of the Aberdeen plant?

A. I believe I recall that the plant was rated at about 12,000 tons a year of capacity.

Q. And its capacity today?

[fol. 265] A. Is about 22,500 tons.

Q. When did these increases take place?

A. The major increase was brought on in about December, 1959. I believe in the interim, from the start up to that point, there were certain slight plant modifications that enabled us to produce something approaching 15,000 tons. The significant expansion came on in December, 1959, about 7,500 tons rated capacity.

Q. I believe you stated the initial capacity was 12,000 tons?

A. That was the rated design on it.

Q. How much of the capacity did AmPot initially sell? How much of that 12,000 tons did it sell?

A. All of it.

Q. How much of the capacity of 22,500 tons at today's capacity, how much of that capacity does it sell?

A. In effect, all of it.

Q. Would you describe the areas in which the chlorate from Aberdeen is marketed?

A. It is marketed primarily in the southern part of the country, which we regard as a line south of the Ohio River and coming east, including Virginia, primarily south of the Carolinas. A nominal amount of the production is sold in New England and some limited tonnage in the midwest and a small amount in the southwest—west Texas.

[fol. 266] You do not include Texas in your definition of the southern part?

A. Yes, I do include that. Yes.

Mr. Copley: With the Court's permission I would like to show Mr. Dirksen a map of the United States and ask him to name the States which he considered in the southern area.

The Witness: Would you repeat the question?

(The last question was read by the Reporter.)

The Witness: From our corporate marketing philosophy we would regard the following States in the southern marketing area: Texas, Oklahoma, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, Florida, North and South Carolina, and part of Virginia.

By the Court:

Q. Your marketing philosophy with reference to sodium chlorate?

A. To all of our products.

The Court: All of your products.

We will take a recess until tomorrow morning. What did we agree on, 10:30, as the commencement hour, or 10:00?

Mr. Freed: We fixed 10:00.

The Court: I believe we will adjourn at 4:00.

[fol. 267] (At this point the trial was adjourned until 10:00 o'clock a.m., Tuesday, November 7, 1961.)

[fol. 268] Tuesday, November 7, 1961, 10 o'clock a. m.

PRESENT:

As before noted.

Mr. Copley: Your Honor, before commencing my questioning Mr. Dirksen would like to change a date in his testimony of yesterday regarding the expansion of the Aberdeen plant.

ALVIN J. DIRKSEN (Resumed)

Direct examination (Cont.)

The Witness: I believe I said December, 1959; it should have been about December, 1960.

By Mr. Copley:

Q. Yesterday, Mr. Dirksen, in testifying about selling the output of the Henderson plant you used the term "direct sales function" and "technical service function".

What did you mean by the term "direct sales function"?

A. Excuse me. I think you just said the output of the Henderson plant?

Q. Yes. What do you mean by these terms without regard to the output of any particular plant?

[fol. 269] A. All right. By the "direct sales function", I am referring to the procedure of soliciting business, handling shipments, invoicing, any customer complaints about shipments.

By "technical service" I am referring to the function where an engineer or a chemist renders assistance in the start start-up of a plant or in seeing that the product is properly and efficiently used in process.

In the direct selling area I was attempting to explain that our company plays a very significant role in this part of the function of the selling process.

I also wish to make clear that Solvay renders almost the entire function of the technical service phase. They also assist materially in the direct selling.

Q. Yesterday you defined for the Court the southern area as AmPot uses that term. How many sales offices does AmPot have in the southern area?

A. We have two district offices, one in Shreveport, Louisiana, and the other in Atlanta, Georgia. We have appointed a man to serve as a regional sales manager in this southern area. His responsibilities embrace Shreveport and Atlanta districts.

Q. How many personnel man these offices?

A. Two men in Shreveport, and a total of three men in Atlanta.

[fol. 270] Q. Is that in addition to the regional manager?

A. Including the regional manager.

Q. At Atlanta?

A. At Atlanta.

Q. What products are sold by these offices in the southern area?

A. They are selling sodium chlorate, sodium sulphate, our boron product line, and all of our various chemicals.

Q. Is salt cake one of those products?

A. Yes, Sodium sulphate is also salt cake, or it is synonymous.

The Court: What is that?

Mr. Copley: Salt cake.

By Mr. Copley:

Q. At the time that you installed your Aberdeen plant in 1958, how many sales offices did you have in the southern area?

A. We had at that time both of these district offices established.

Q. Were the personnel manning these offices the same?

A. We have added one man in each office since then.

Q. When the Aberdeen plant went on stream in 1958, who was selling the output of that plant?

A. I would say that at that time Solvay Process Divi- [fol. 271] sion was almost entirely responsible for selling it.

Q. Today where does that responsibility rest?

A. I would say again that the direct selling aspects of it are largely our responsibility.

Q. Approximately what portion of the output of the Aberdeen plant is sold by the AmPot sales force?

A. If the Court can understand, I have attempted to ascribe about 70 per cent or so of the direct sales function or responsibility to our company. I want to make it clear that Solvay also is actively selling. This is why I am hesitant to try to fix any quantitative responsibilities, but I feel that we contribute say about 70 per cent of the direct selling effort.

By the Court:

Q. That was the question you could not answer yesterday?

A. That is right, your Honor.

Q. Upon reflection this is the best approximation or breakdown you could make?

A. Yes.

Mr. Copley: Yesterday, your Honor, the question was asked specifically with reference to the Henderson plant. Today we have been speaking more of Aberdeen.

[fol. 272] By the Court:

Q. Are you referring to sodium chlorate exclusively in your last testimony?

A. Actually these remarks are primarily centered around Aberdeen. Is that your understanding?

Mr. Copley: Yes, that is my understanding.

By the Court:

Q. And limited to sodium chlorate?

A. Yes.

By Mr. Copley:

Q. Before Aberdeen went on stream, where was the output of your Henderson plant sold?

A. Both east and west.

Q. Any particular area in the east?

A. Well, heavily in this Southern area, or particularly the Southeastern part of the country.

Q. What time period did you have in mind here?

A. For these remarks?

Q. Yes, sir.

A. Previous to the Aberdeen start-up; so it would be previous to about mid-'58.

Q. Could you tell us approximately what portion of the output of the Henderson plant in 1957 was sold in the East?

The Court: Henderson was producing solely sodium [fol. 273] chlorate?

Mr. Copley: I am referring only to the sodium chlorate output of the Henderson plant, your Honor.

A. And you realize that part of the output goes to alternate uses besides sale as such.

By Mr. Copley:

Q. I understand that.

A. So you are referring to the sales of sodium chlorate out of the Henderson plant?

Q. To the East.

A. We were selling about 3500 tons in the West and about 10,000 in the East.

Q. Do you know approximately how much of that 10,000 was in the Southeast?

A. I would estimate about 7500 in the Southeast.

Q. Turning to the technical service function which Solvay performs for your company, could you give us an outline of what services Solvay does render to the pulp and paper industry in the East, or perhaps I should not confine it to the East and just say, what services does Solvay itself render?

The Court: With reference still to——

Mr. Copley: Sodium chlorate.

The Court: Sodium chlorate.

[fol. 274] A. Solvay Process has a very effective and large over-all technical service laboratory in Syracuse, New York, and one of the sections in it is dedicated to pulp and paper industry tech service, and, as I recall, their staff is headed up by a very experienced and responsible paper chemist, and he has about eight employees in the group, and one or two of this group, in addition to the director, are especially versed in pulp and paper chemistry and technology. These people assist in the plant start-ups, bleaching plant start-ups, and in turn offer technical advice as questions arise from the paper production people.

Q. Do you know how often they are called upon to render services in connection with the start-up of a new mill?

A. I believe that they normally volunteer their services on a start-up, or, if not, they are very frequently called upon to offer certain engineering and technical assistance. So that practically on every start-up they very likely are on hand for several days or a week or two.

Q. Do you know how many chlorine dioxide mills were installed in 1960 in which Solvay rendered technical assistance?

A. I can think of about three, two or three.

Q. Turning to the operating side of the chlorine dioxide process mill rather than the start-up, how often is Sol-[fol. 275] vay called upon to assist in the operating problems?

A. It is very difficult to answer with any accuracy. It might be——

The Court: Well, don't guess about it.
The Witness: Don't guess, all right.

By Mr. Copley:

Q. In AmPot's opinion what is the value of technical services today as a sales aid in pulp and paper industry?

Mr. De Lone. Your Honor, I assume he is interested in Mr. Dirksen's opinion. If he has an opinion, I have no objection.

The Court: I understand the corporate opinion is called for.

Mr. De Lone: Well, I object to that. The corporation hasn't been qualified. I suppose this witness is qualified.

The Court: Well, is it important to draw the distinction between the witness' opinion and AmPot's opinion as such, Mr. Copley?

Mr. Copley: Your Honor, I think the two coincide.

The Court: Well, ask him for his own opinion.

By Mr. Copley:

Q. Mr. Dirksen, what is your opinion regarding the value of technical services in selling sodium chlorate to [fol. 276] pulp and paper industry?

A. It is a fairly important part of the over-all selling procedure.

Q. Is it as important today as it was, say, three years ago?

A. You are referring only to sodium chlorate?

Q. Yes, sir.

A. And its application?

Q. Yes.

A. In my opinion not quite as important today.

Mr. Copley: Your Honor, that concludes the Government's direct examination of Mr. Dirksen.

Cross-examination

By Mr. De Lone:

Q. Mr. Dirksen, you have just been describing the technical service function performed by the Solvay Division of Allied Chemical. I understand you to have testified, though, that they also have a sales force which calls on pulp and paper mills in the Southeast, Solvay does, isn't that correct?

A. I don't recall so testifying.

Q. You described to some extent at least the fact that the Solvay Corporation does have a sales organization [fol. 277] which is active in, I think you said, the Southeast and various other places?

A. I beg your pardon. I understand you.

Q. Now, that sales force, so far as the Southeast is concerned to your knowledge, if you know, approximately how many people are in this area? I guess you defined it as the South yesterday. You called off a list of states. How many sales personnel does Allied have in that area today?

The Court: Are you limiting this to any given product or are you taking——

Mr. De Lone: I am asking first, sir, about their force and, to the extent the witness can tell me, how it is limited by product.

A. In outline Solvay has an Assistant Director of Sales in New York who is primarily concerned with pulp and paper chemicals, and he in turn has rather heavy responsibility over certain district offices, such as Charlotte——

By Mr. De Lone:

Q. Charlotte, North Carolina?

A. North Carolina. They have a small office, as I recall, in Jacksonville, Florida; and in other offices they have one or more salesmen who are particularly involved in selling pulp and paper chemicals.

Q. They have other offices in addition to Charlotte?

[fol. 278] A. For example, Boston gives us some assistance in several of the New England mills, and we would get some assistance from their Cincinnati office, again as a part of their over-all selling activity.

Q. Well, now, so far as the director who is in charge of their efforts in the pulp and paper industry, what products are involved in Allied's pulp and paper industry efforts?

A. I would say items such as chlorine, caustic soda, and perhaps to some extent hydrogen peroxide. These are somewhat allied chemicals to sodium chlorate in the pulp and paper industry.

Q. Do you include sodium chlorate in the list, that is, with which this man in New York and the offices under him are concerned?

A. We hope so and so encourage these men.

Q. And so far as the Southeast area is concerned and any Allied or Solvay sales effort in the Southeast, that would come chiefly from the offices of Solvay at Charlotte, North Carolina, and Jacksonville, Florida, is that correct?

A. And some assistance from all of their offices that are serving pulp and paper mills, these part-time services.

Q. Do I correctly understand that these sales per-
[fol. 279] sonnel of Solvay are concerned not just with one chemical, but with a group of pulp and paper chemicals to which you have made reference—chlorine, caustic soda, sodium chlorate, and hydrogen peroxide?

A. Yes.

Q. So to that extent, at least, they don't have any men that specialize just in sodium chlorate?

A. That is right.

Q. But the customers they call on in the pulp and paper field are customers for all of these products?

A. That is my understanding.

Q. I also understand that going back to 1958, when the Aberdeen plant came on stream you testified that at that time its output was handled almost entirely by the Solvay Division of Allied, if I understand your testimony correctly?

A. Yes.

Q. Then I take it there has been a shift and AmPot has moved more into direct contract with the customer and the picking up of orders than had been the case a few years back?

A. That is right.

Q. This would apply, would it not, whether the product being sold moved into the area we have generally described

as the southeast from Henderson or from Aberdeen? Did it make any difference back in 1958 where the tonnage [fol. 280] originated who was going to handle the selling?

A. I don't think that was significant.

Q. Then to the extent that by the time the Aberdeen plant had come on stream by the end of 1958, to the extent that AmPot was selling to pulp mills in the southeast, would it be fair to say that the entree to those pulp mills as a sales outlet was gained for AmPot by Allied or Solvay, which ever you want to call it?

A. Yes.

Q. And subsequent to that time AmPot has gotten itself closer to the customer, so you have direct contacts with them and are not so dependent on Allied to preserve those relationships?

A. That is right.

Q. Now we might turn to the time when you decided to go forward with a plant at Aberdeen, Mississippi, which came on stream sometime in 1958. At the time you were considering this subject had Hooker already located its plant at Columbus?

A. Yes.

Q. Was that an effect which you took into account in deciding what you were going to do at AmPot?

A. Yes.

Q. Why, if you had a facility at Henderson, Nevada, did you decide to build a plant at Abereen, Mississippi?

[fol. 281] A. We needed to expand.

Q. Were there any other reasons?

A. We felt that being closer to the market would offer some material advantage in effecting sales.

Q. Would you explain what advantage you saw in effecting sales from having a plant at Aberdeen, Mississippi, as against one at Henderson?

A. There is some resistance on the part of buyers to purchase from distant plants. There is always the possibility of delays in receipt of material the farther the plant is from the source, so that there is a logical preference to buy closer to home in the chemical industry.

Q. Had you prior to the construction of your Aberdeen plant encountered such resistance to purchases from your

Henderson facility or customer preference for a plant nearer their location?

A. Not unduly, because we were in a fairly happy supply and demand balance at the time, so that we were getting about the tonnage that we were trying for even from Henderson.

Q. This was, then, I take it, more an anticipation of future demand than the immediate situation that you were thinking of when you went forward with the Aberdeen facility initially?

[fol. 282] A. That is right.

Q. In addition to the customer reaction consideration which you mentioned, was there consideration from your standpoint of the freight costs involved?

A. Oh, yes.

Q. Thinking in terms of serving the whole southeastern area of the United States, the pulp mills there, from Henderson as against serving them from Aberdeen, Mississippi, or a location generally in the southeast, what was the freight disadvantage approximately on the average that you were confronted with?

A. Approximately $25 to $30 per ton in the southeastern consuming area.

Q. And that is against a price per ton delivered in the southeast of what, approximately? Would you just do the mathematics? We have talked about price on a hundredweight basis. What was the selling price, the price you were getting at that time when you made deliveries into the southeast?

A. We were getting $8.15 per ton f.o.b. Henderson, and then having to absorbe $25 to $30 a ton freight. Does that answer your question?

Q. Yes. Well, you have given it in pounds. Just do the mathematics for me. I am sure you know what that [fol. 283] means your f.o.b. Henderson price is per ton.

A. I believe that calculates to $163 a ton.

Q. Then you would have to absorb the freight from Henderson to Columbus; is that right; which was the location of the Hooker plant? You would equalize or pick up yourself the freight to the northwest producing point, namely, Hooker's plant at Columbus?

A. That is right.

Q. And then the customer would pay the balance of the freight?

A. That is right.

Q. I meant to ask you earlier and forgot: This arrangement that you have with Solvay you testified about provides that they get a 5 per cent commission on all sales. Is that on all sales to the pulp and textile industry or is it on all sales that AmPot makes?

A. They are only exclusive in pulp and paper and textiles. They do no other selling for us.

The Court: Is there testimony that the commission is 5 per cent?

Mr. De Lone: I thought the rate was mentioned yesterday.

The Witness: I believe I mentioned that yesterday. That is in the contract.

[fol. 284] There is a correction to that, an addendum. The stipulated commission is 7½ per cent west of the Rockies and 5 per cent east of the Rockies. That is a part of the contract.

By Mr. De Lone:

Q. Do you know the reason for that distinction?

A. I believe the reason was——

Q. If you don't know, Mr. Dirksen, I don't want to encourage you to guess about things.

A. Well, I am fairly sure of this. I think the reason was the fact that the greater distance west increased traveling costs, and the limited number of pulp and paper accounts there. It seemed fair and equitable to pay a bit more there.

Q. Returning, then, to the subject of the decision to go forward with this Aberdeen plant, you commented on the service problem and delivery problem. About what is the time for delivery from Henderson to the southeast area generally? Let us take a point say in Alabama.

A. 10 to 14 days, roughly.

Q. What is it when your shipment moves from Aberdeen, approximately?

A. Two to four.

Q. Does AmPot own its own tank cars or hopper cars?

A. They are on a long-term lease.

[fol. 285] Q. Is the cost to you and the tying-up of your equipment also increased or minimized if your plant is at Aberdeen rather than Henderson?

A. Do you need less equipment? Is that your question?

Q. Yes, or are your equipment costs less if your delivery is from Aberdeen?

A. I would think so, yes.

Q. At the Aberdeen plant of AmPot do you have any facilities for drumming the product?

A. No.

Q. All sales from Aberdeen are made in bulk; is that correct?

A. That is right, yes.

Q. Such business as you have in drums I take it then all originates from Henderson?

A. That is right.

Q. In 1960, according to figures which have been supplied by your company and which will be in evidence AmPot shipped approximately a little over 7000 tons of sodium chlorate from Henderson into the area of Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, Florida, North Carolina, Virginia, West Virginia, and Kentucky, which some of us at least have been referring to as the southeast. I understand your plant at Aberdeen had not gone on stream [fol. 286] with this additional tonnage of 7500 tons until December of 1960?

A. That is right.

Q. Was it your plan and indeed are you practicing it in 1961, to fill as many of those orders in that territory out of Aberdeen rather than out of Henderson, as many as you can?

A. We keep Aberdeen sold up as much as we can.

Q. And your sales out of Aberdeen you make as close to the Aberdeen plant as you can; is that right?

A. That is right.

Q. You made mention a little while ago of the current price or at least of the price at which sodium chlorate is sold. It was indicated yesterday that that price has been stable in the last few years and was somewhat higher back in 1954. Have the costs of making sodium chlorate gone down since 1954?

A. I would not know, sir.

Q. Did you learn of the formation of Penn-Olin at the time it was publicly announced in February of 1960?

A. Would you repeat the question?

Q. Did you learn that Penn-Olin, a joint venture of Olin Mathieson and Pennsalt, was planning to go into the sodium chlorate business at Calvert City in February of 1960?

[fol. 287] A. We learned fairly early that year. I am not sure exactly when.

Q. Despite that knowledge did you proceed with the construction of an increase in your facilities at Aberdeen from 15,000 tons to 22,500 tons of rated capacity?

A. Without hesitation.

Q. You heard mentioned yesterday—I think you were in Court when Mr. Berggren testified—of Hooker's efforts to sign up five-year contracts. Did AmPot make similar efforts following the announcement of Penn-Olin?

A. Yes.

Q. In the sales which AmPot makes into the southeastern area that I have described, specifically to pulp and paper mills, do you sell exclusively to mills which have a Solvay Process chlorine dioxide generating system, or do you sell both to those mills and to mills with a Mathieson process chlorine dioxide generating system?

A. Both.

Q. And in terms of the total number of mills to which you sell do you know which predominate? Do you sell more to mills with the Solvay process or more to mills with the Mathieson process?

A. Somewhat more to Solvay installations.

Mr. De Lone: I have no further questions, sir.

[fol. 288] By Mr. Connelly:

Q. Mr. Dirksen, you testified to the fact that your Henderson plant was at a freight disadvantage as against the Columbus plant of Hooker in sales to the sodium chlorate market in the southeast. Was there also a sodium chlorate market in the northeast?

A. Some market.

Q. Were you or was your Henderson plant at a freight disadvantage in that market as against the Niagara Falls plant of Hooker?

A. Yes.

Q. Was there also a sodium chlorate market in the northwest?

A. Yes.

Q. Was the Henderson plant of your company also at a freight disadvantage as against the Oregon plant of Pennsalt?

A. Yes.

Q. Incidentally, you testified I think on direct examination concerning sales made from the Henderson plant to the west. You have not, I take it, made sales to the northwestern market for sodium chlorate, have you?

A. In the past.

Q. In 1960 did you make any sales or shipments to that northwest market?

[fol. 289] A. Not that I recall. In pulp and paper?

Q. Yes.

A. That is right.

Q. Having in mind these several freight disadvantages to which you have testified, can you tell us, if you know, why the Henderson plant was located at Henderson, Nevada?

A. It would only be conjecture. It was before my time.

Q. You do know, do you not, that that was originally constructed as a defense facility rather than a commercial plant?

A. I do.

Q. Does your company own that plant or does it lease it?

A. It is my understanding that we own the part that we are operating, with one exception. I believe there is a Navy facility that we are operating, but we do not own it.

Q. You operate that lease from the United States Navy?

A. I believe that is the status.

Q. In connection with your current efforts to sell sodium chlorate do you encounter vigorous competition?

A. It is pretty vigorous.

Q. Has there been any lessening in that competition [fol. 290] to your knowledge since the establishment of Penn-Olin in 1960?

Mr. Copley: Your Honor, I object. That question calls for a legal conclusion.

Mr. Connelly: No. I am simply inquiring about the witness' experience encountering competition in selling sodium chlorate.

The Court: The objection is overruled.

The Witness: Could I have the question repeated?

Mr. Connelly: Would you read the question, please?

(The Reporter read the question as follows:)

"Question: Has there been any lessening in that competition to your knowledge since the establishment of Penn-Olin in 1960?"

A. No.

By Mr. Connelly:

Q. Do you know of any facts which are likely to lead to a lessening of competition in the sodium chlorate business in the future?

A. No.

Mr. Connelly: That is all.

Mr. De Lone: Your Honor, I omitted two brief questions I had intended to ask the witness. Perhaps the Government has some more examination.

[fol. 291] The Court: I think that the cross-examination should be concluded before the redirect commences. Do you have any objection to supplemental questions being asked by Mr. De Lone, Mr. Copley?

Mr. Copley: No, your Honor, we have no objection to supplemental questions.

By Mr. De Lone:

Q. Mr. Dirksen, in your earlier examination you made some reference to the fact that not all of the output of the Henderson plant goes into commercial sales, that is, the sodium chlorate output. To what other use besides commercial sales of the product does American Potash put sodium chlorate made at its Henderson facility?

A. It is an intermediate to sodium perchlorate, potassium perchlorate, potassium chlorate, and ammonium perchlorate.

Q. And do you make al lof those products at Henderson

and therefore in captive use consume some of the capacity of your Henderson plant for those other products?

A. Yes.

Q. And is ammonium perchlorate the largest of those other products in terms of the current rate of production?

A. Yes.

Q. And do you anticipate further increases in the ammonium perchlorate demand?

[fols. 292-294] A. Yes.

Q. Could you tell us also when Columbus, Mississippi, became the equalization point for shipments from Henderson, Nevada, to the southeast?

A. When?

Q. Yes. You described the process but I didn't tie you down to when it occurred. Did that happen when Hooker began to ship from its Columbus, Mississippi plant?

A. Yes.

Q. Up to that time you would have had to equalize from Henderson into the southeast to equalize with Niagara Falls rather than with Columbus, isn't that right?

A. I again assume so. Again this period was before my experience.

Mr. De Lone: I have no further questions.

Mr. Copley: No further questions, your Honor.

The Court: That is all.

. . . . . .

[fols. 295-296] Wednesday, November 15, 1961, 10 o'clock a.m.

. . . . . .

[fol. 297] STANLEY OSBORNE, a witness called by the defendant Olin-Mathieson Chemical Corporation, being first duly sworn, testified as follows:

Direct Examination

By Mr. Connelly:

Q. Mr. Osborne, are you presently employed by the defendant, Olin-Mathieson Chemical Corporation?

A. Yes, sir.

Q. In what capacity?

A. President.

Q. For how long have you held that position?

A. Since May 2, 1957.

Q. How long have you been employed by defendant Olin in any capacity?

A. Since 1950.

Q. Prior to your first employment by Olin what position did you occupy?

[fol. 298] A. I was vice president of Eastern Airlines.

Q. Since your employment by Olin Mathieson, will you state in general terms the nature of the positions that you have held and the experience that you have had with the company?

A. I came in as treasurer of Mathieson Chemical Corporation, a predecessor company. I then became financial vice president upon the merger with Olin. In 1954 I became executive vice president in charge of the international division. In 1956 I added the financial vice presidency to that. In 1957 I became president and chief executive officer.

Q. Apart from your work with the International Division, has your experience with the company been entirely in the administrative and financial end?

A. Yes, sir.

Q. Mr. Osborne, I will call the defendant "Olin" for the purpose of convenience. Does Olin operate through a number of different divisions?

A. Yes, sir.

Q. Will you state what those divisions were during the period 1959-'60?

A. The Chemicals Division, the Organics Division, the Metals Division, the Packaging Division, the Pharmaceutic [fol. 299] Division, as represented by Squibb, the Arms and Ammunition Division, represented by Winchester-Western, and the International Division. Seven in all.

Q. Without going into detail, will you state in a general form the nature of the products produced and/or sold by each of those divisions?

A. The Chemicals Division is generally divided into three major areas: agricultural products, phosphate chemicals, and industrial chemicals, so-called.

The Organics Division is divided into organic chemicals, commercial explosives, and work in research and development for the Government.

The Paper Division, or the Packaging Division, is divided into fine papers, films, and forest products.

The Metals Division operates in the non-ferrous field, aluminum and brass.

Squibb, or the Pharmaceutical Division, operates in the ethical drug field, the over-the-counter drug field, the veterinary field.

The Winchester-Western Division operates in sporting arms and ammunition, military arms and ammunition, and power actuated tools.

I think I have covered all of those.

The International Division represents the company [fol. 300] throughout the world outside of the 50 states and the District of Columbia.

Q. Are there from time to time requests presented by the various divisions of Olin for capital appropriations for new products, new equipment, new facilities, and the like?

A. Yes, sir.

Q. Is that a frequent situation or infrequent?

A. It is a very frequent situation.

Q. What if any procedure has been established by Olin

to deal with the matter of capital appropriation requests submitted by the various divisions of the company?

A. The general procedure is what we call a Whither Report issued once a year by each of the divisions, which gives in a general form the program that they would like to follow for the succeeding five years, not only as to capital expenditures but as to research, people, and everything that has to do with the program of a division.

This Whither Report is merely a program presented to the corporation by the division to the end that the moneys available to the corporation in every year can be divided in a proper way rather than "First come, first served." The Whither Report, however, if accepted by the corporation, does not permit the expenditure of the funds. This has to [fol. 301] be done through capital asset appropriations, which are then referred to a Capital Asset Appropriation Committee, who either approves or disapproves. If the committee approves, then the division and the committee are together and the matter comes to me for final signature, up to a certain amount of money; beyond that, to the board. If the committee and the division disagree, they have a right of appeal to me, where a decision is reached, and if turned down, that is the end of it; if not turned down, then it goes on the successive steps to appropriations.

Q. You spoke in describing that procedure of the acceptance or non acceptance by the corporation of the division's Whither Report. What person or persons are involved in the passing upon such Whither Reports for the corporation?

A. Generally speaking, a division will present a written Whither Report, which it will then send to the group called the staff, so-called experts on the corporate level, who will study it anywhere from a week to a month. They will meet with the division. The division makes an oral presentation. Questions are asked and then the staff either recommends that the Whither Report be accepted as a general program of action of the division or turned down in whole or in part.

[fol. 302] Q. During the period from 1957 to 1960, Mr. Osborne, were there any limitations in effect upon the amount of funds, of corporate funds available for capital appropriations by the divisions?

A. Insofar as limitations upon the ability for any Vice

President and General Manager to appropriate without approval from the corporation, yes, $25,000, which has been raised to $50,000 recently.

Q. With reference to capital appropriations request made by the divisions was there or has there been during any part of that time any restriction or limitation upon the funds, the volume of funds, available for capital appropriations?

Mr. Freed: I object to that question, your Honor. I do not see its relevancy to this case.

The Court: What is the relevance?

Mr. Connelly: The suggestion has been made by the plaintiff that the defendant Olin was proceeding with plans to erect a facility for the production of sodium chlorate. I propose to develop through this witness the procedure involved to indicate that the project had never gotten to the point of corporate action, of corporate decision in favor of any such project, and as one of the aspects of that I simply wanted to bring out the fact that during this period of time there was in fact a period of financial stringency [fol. 303] so that the corporation had to deal competitively with the various requests by the several divisions.

Mr. Freed: Your Honor, the procedure that Mr. Connelly wishes to bring out from this witness certainly is pertinent to action that the corporation took, but I do not believe that financial stringency, or however it may be characterized, is relevant in an anti-trust case unless the defendant is interposing a failing corporation defense, or something equivalent to it.

The Court: The objection is overruled.

By Mr. Connelly:

Q. Do you have the question in mind, Mr. Osborne?

A. During the period 1958 and 1959 particularly the corporation did have a severe financial stringency situation as a result of our having embarked upon the aluminum program which involved a total expenditure of somewhat under a half a billion dollars, and a direct expenditure by the corporation of over $125,000,000, which left the other divisions without funds for expansion, and in 1958 we had stopped all projects other than the ones then in building.

Q. Did there come a time when the practice of authorizing capital appropriations was resumed?

A. Yes. We were able to—Two things happened, one, [fol. 304] we raised $60,000,000 in the financial markets through the issue of 5½% debenture bonds, and our troubles began to get behind us so that we were able to allot funds to the other divisions on an equal basis.

By the Court:

Q. What was the date of issuance of your debentures?

A. As I recall it, sir, it was the latter part of 1957 and the early part of 1958. There were two issues.

Q. That financing program was in contemplation for some period, I suppose, before the debentures were actually marketed?

A. No. They were not over a month, just the length of time necessary to get them through the S.E.C.

By Mr. Connelly:

Q. I show you Plaintiff's Exhibit 175, being the letter of agreement dated February 11, 1960, between Olin and Pennsalt, and ask you whether you executed that agreement on behalf of Olin?

A. Yes.

Q. I show you also, Mr. Osborne, Plaintiff's Exhibit 185, which is a memorandum dated January 22, 1960, from Mr. Block to you, and ask you whether you received that memorandum.

A. Yes.

[fol. 305] Q. who was Mr. Block?

A. Mr. Block at that time was Vice President and General Manager of the Chemicals Division.

Q. Is Mr. Block still alive?

A. No.

Q. When did he die?

A. He died a year ago.

Q. With reference to the memorandum from Mr. Block of January 22, 1960, can you fix for us approximately the time at which you first gave consideration to a proposed joint venture between Pennsalt and Olin?

A. I would think within a very few days of the January 22 letter to me.

Q. Did you have a discussion with anyone on the subject of the proposed joint venture, and if so, with whom?

A. Mr. Block.

Q. Will you state the substance of that discussion, please?

Mr. Freed: I object, your Honor. It is hearsay.

The Court: This is an internal communication you are asking about, Mr. Connelly?

Mr. Connelly: Yes.

The Court: I take it out of the presence of the Government, certainly.

[fol. 306] Mr. Connelly: I think that is true. This is one of the corporate procedures that preceded the entering into the arrangement in question. I take it we are entitled to produce for the benefit of the court the information on the basis of which the parties acted in this situation. It is not being offered for the truth of anything that was said in the course of the conversation, it is offered as evidence——

The Court: To establish the conversations?

Mr. Connelly:—of what happened as a result of which the corporate corporation took action.

The Court: Mr. Freed, I think I will have to hear the testimony really to properly determine whether the subject matter is admissible. I think it will not be possible for me——

I shall overrule your objection without prejudice, however, to your right to move to strike the testimony after it has been introduced, if you see fit to do so.

Mr. Freed: Thank you.

By Mr. Connelly:

Q. Do you have the question in mind, Mr. Osborne?

A. You asked the question at what time did I first—what was my conversation with Mr. Block.

Q. Yes.

A. As best I recall it it was the approach by Mr. Block [fol. 307] whether or not I would be willing to entertain a joint venture with Pennsalt in the chlorate field, and the

letter of January 22 follows my acceptance of the program that he had brought to me for consideration.

Q. Was the program brought to you for your consideration that which was subsequently reflected in the letter of agreement of February 11, 1960, Plaintiff's Exhibit 175?

A. Yes.

Q. That letter of agreement, Mr. Osborne, contains in the first paragraph this statement:

> "This letter is intended to outline a basis on which Pennsalt Chemicals Corporation, Pennsalt, and Olin-Mathieson Chemicals Corporation, will enter into a joint venture for the manufacturing and marketing of sodium chlorate, potassium chlorate, and perchlorates to be manufactured in facilities of a new company designated as Penn-Olin Chemical Company hereinafter referred to as Penn-Olin, to be owned equally by Pennsalt and Olin."

I ask you whether in your discussions prior to February 11, 1960, there had been any discussion on the subject of products other than sodium chlorate, specifically a discussion of the possibility of production of potassium chlorate [fol. 308] and perchlorates?

A. Not that I recall.

Q. Did there subsequently come a time when the matter of potassium chlorate and perchlorates was ever excluded between the parties as an activity of the Penn-Olin Company?

A. The answer to that is yes because as of today there is no consideration of having perchlorates in the Penn-Olin Company.

By the Court:

Q. What about potassium chlorate?

A. The same, sir.

By Mr. Connelly:

Q. I will ask you to look, Mr. Osborne, at Plaintiff's Exhibits 181, 182, and 183, which are three agreements between Olin and Pennsalt with reference to Olin, dated as of January 2, 1961.

I ask you whether you are generally familiar with those agreements?

A. Yes.

Q. Do these agreements constitute the definitive agreements dealing with the Penn-Olin venture which were referred to in the outline of February 11, 1960, agreement?

A. Yes.

Q. So far as you know, Mr. Osborne, is there any under-
[fol. 309] standing or agreement between Olin and Pennsalt on the subject of the Penn-Olin joint venture other than that reflected in the documents which I have just shown you?

A. No.

Q. Prior to February or the early part of 1960, when Mr. Block brought to your attention the proposal with reference to a joint venture with Pennsalt, had there been any consideration given to your knowledge to the subject of a sodium chlorate facility for the Chemicals Division?

A. Yes.

Q. I show you Plaintiff's Exhibit 15, which consists of extracts from the so-called Whither Report of the Industrial Chemicals Division, dated April 4, 1958, and I call your attention specifically to the page which is headed Section 4, five pages from the back of the document, specifically under that the paragraph headed, "Electrochemical Process Products," and the statement therein contained:

"Products Ind Chem"

I take it that refers to the Industrial Chemicals Division?

A. Yes.

Q. "Products Ind Chem should seriously investigate since they meet one or more of the aforementioned criteria,
[fol. 310] including the following: (a) chlorates and perchlorates."

And then there is a discussion of factors affecting possible interest in investigating those products.

Is that the first reference that you are aware of in terms of comments by the Chemicals Division to corporate management on the subject of sodium chlorate?

A. Yes.

Q. Was any action taken by the corporate staff with

reference to that particular subdivision of the Chemicals Division Whither Report, 1958?

A. The only action that I recall is in 1959 when the staff turned down the suggestion of the Chemicals Division for the construction or for the programming, rather than the construction, for the programming of the chlorate plant at McIntosh, Alabama.

Q. So far as the 1958 report, Plaintiff's Exhibit 15, which is before you, is concerned, that reference to which I have directed your attention is merely a statement that products should be seriously investigated by Ind. Chem. Did that call for any corporate action?

A. No, sir. This is just a programming of the Chemicals Division and did not call for any corporate action.

Q. I now show you Exhibit 32, which is the 1959 Whither [fol. 311] Report of the Chemicals Division, and direct your attention to the bottom of the first page of that document, the page being numbered 18:

> "It is recommended that a sodium chlorate facility having an annual capacity of approximately 15,000 tons be installed as an addition to our present McIntosh, Alabama, plant, such facility to be ready for operation in 1961. We are advised that a competitive chemical producer, new to the sodium chlorate field, is giving serious consideration to the installation of a sodium chlorate producing plant, and therefore we further recommend that announcement be made at once for our plans for the new McIntosh chlorate facility."

Is that the report to which you referred just a moment ago?

A. Yes, sir.

Q. The first recommendation by the Chemicals Division?

A. Yes, sir.

Q. I show you also Plaintiff's Exhibit 34, which is an extract from a document dated April 23, 1959 prepared by Mr. E. H. Bellows, and addressed to you, the staff, and Mr. J. O. Logan, on the subject of the Chemicals staff meet- [fol. 312] ing on April 16, 1959, and refer you to the statement contained on page 2 of that memorandum, the paragraph lettered F:

"The program for sodium chlorate at McIntosh is not sufficiently attractive to be approved at this time. There should be further examination on three points, (1) technical adequacy; (2) is the proposed installation basically a protective measure; (3) is a pay-out of more than six years the best that can be obtained?"

I ask you whether that reflects the decision to which you earlier testified by the staff rejecting the recommendation of the Chemicals Division in 1959?

A. Yes, sir.

Q. Following that action, April of 1959, was there at any time subsequent thereto any recommendation by the Chemicals Division of Olin to corporate staff management of a proposal to create an independent sodium chlorate producing facility?

A. I believe there was after this in late 1959, in the Whither Report of 1959.

The Court: Was that after the studies had been made of the three points which are referred to in the April 23, [fol. 313] 1959, memorandum?

The Witness: I would judge so, yes, sir.

By Mr. Connelly:

Q. Do you have Plaintiff's Exhibit 32 before you, the Whither Report of '59?

A. This is the '59 Whither Report.

Q. I call your attention to the cover page of that, which refers to Revised Exhibits 26, 29 and 30, dated October, 1959. Are those exhibits what you referred to by further action with reference to this proposal?

A. Yes, sir.

Q. Was there any subsequent recommendation made other than the one which was contained in the April, 1959, Whither Report? Was there any subsequent recommendation made by your Chemicals Division of a proposal to proceed independently with the construction of a sodium chlorate plant?

A. No, sir, not as far as the Chemicals Division making a definitive recommendation that required corporate action or funds.

Q. In connection with Olin's consideration of proposals

made by its divisions, is there any corporate policy relating to the question whether a proposed new product should be dealt with as an independent activity or as a [fol. 314] joint venture with some other company?

A. There is no policy as such. All of the various factors are considered, but the various factors have to be considered before you can establish which is the best way or would be the most profitable in which to enter a particular new field.

Q. Will you state, please, the reasons that led you in February of 1960 to authorize the preliminary agreement with Pennsalt looking toward the creation of a joint venture?

A. I would say there are three. The first is the matter of process. Pennsalt had a process; Olin did not, and in a product such as this, an electrolytic chemistry, the experience and the know-how of operating such a process are extremely important. Olin had a process in its research laboratories but it certainly hadn't developed to the point where we had any confidence that any plant could use it at that time.

Secondly was the economics of the program; the economics for the individual plant that had been recommended a year before at McIntosh was not adequate, and the Pennsalt joint venture was marginal but adequate.

Thirdly was the matter of financing. We had not yet gotten out of the woods financially and were trying to stretch our capital expenditure dollars as far as they would [fol. 315] go. A joint venture provides two corporations with a vehicle for financing on a low equity basis, borrowing the funds for the balance of the amount and thus being able to build a plant which we at that particular time did not feel we should spend seven million dollars to build.

By the Court:

Q. Mr. Osborne, could you elaborate a little on your second point; the economics? You said that the economics of the McIntosh plant was not justified but the economics of the joint venture appeared to be. Could you elaborate a little on that point? I am not sure that I understand what you have in mind.

A. The McIntosh plant, as I recall, your Honor, was a

15,000 ton plant. The cost of that plant and the net return after sales were made at the estimated cost and profits, the net return was below the 10% minimum that we hoped to achieve as a return on investment.

Q. That is 10% of your capital investment in that plant?

A. Yes, sir. The return of the larger plant, 25,000 tons at the time, in February, estimated to be the capacity of the Penn-Olin plant at Calvert City, did return somewhat closer to 10%, just under 10%. The important thing, therefore, was a financing means.

[fol. 316] Q. What was the estimated rate of return on your McIntosh plant?

A. I don't recall the exact figure, sir. I think there was figures in the Whither Report that were something like 11%, but when studied that came down well under ten.

By Mr. Connelly:

Q. Mr. Osborne, in answer to the court's question you referred to a 10% rate of return. Is that before or after taxes?

A. After taxes?

Q. In connection with your consideration of that proposal at that time, was the factor of the balance sheet treatment of the obligation of Penn-Olin a consideration that you took into account?

A. Very much so.

Q. Would you explain that please?

A. In a joint company of this sort, it was expected that with an over-all cost of $7,000,000 for the plant, that Pennsalt and Olin would each put in $1,500,000 in equity, and that $4,500,000 would be borrowed from lending institutions.

A joint company of this sort in which each company owns 50%, and not over 51% on any one company's part, permits you to have the debt of that subsidiary company [fol. 317] off your balance sheet. The only part of that would be the asset in the equity.

By the Court:

Q. You don't consolidate them?

A. You do not consolidate them. Therefore it would be a note to your balance sheet stating that Penn-Olin owes Bank X $4,500,000, and that's all.

Q. Whereas if it were a venture division, or part of a division, you would show the borrowed funds as a corporate liability?

A. Yes, sir. Not only that, but it would stand against your over-all credit and your over-all borrowing capacity under the many indentures that corporations of our size have, and therefore would eat into your free borrowing capacity, whereas in a joint venture it does not.

By Mr. Connelly:

Q. Following the execution of the February 11, 1960, letter agreement, what if any further action did the Olin corporate staff take with reference to the proposed joint venture?

A. There was a difference of opinion between the Olin corporate staff and the Chemicals Division as to the advisability of Olin entering into the chlorate field, and as a result of that I appointed a so-called Evaluation Com- [fol. 318] mittee, chairmanned by a Vice President for development, Russell Hopkinson, to study the entire matter of chlorate and to make a recommendation to me at an early date.

By the Court:

Q. As of what date are you speaking?

A. After February 11th when the letter of intent, so-called letter of intent, was signed.

Q. Wasn't that a binding commitment subject to a more definitive specification of terms? I haven't read the letter of intent.

A. No, sir, I don't think it was a binding commitment. It was writing the basis upon which an agreement would be reached, but it certainly was subject to action by the boards of directors of both companies and further action by management.

Mr. Connelly: If your Honor will look at the last page, paragraph 6 states:

> "It is recognized that a definitive contract in greater detail will be necessary to cover the provisions of this letter respecting the selection of a sodium chlorate process and the formation of Penn-Olin and other matters relating thereto. Both parties agree to negotiate in good faith for the purpose of reaching a mutual [fol. 319] agreement on the provisions of definitive contract that will be consistent with the understandings above set forth. If the definitive contract is not agreed upon and executed by both parties within a reasonable time after date of acceptance of this letter, both parties will be relieved of all further obligations under this letter."

The Court: I would suppose that that provision would foreclose further consideration of the feasibility of the project, as seems to be suggested by the last testimony. But I will hear the testimony.

Mr. Connelly: Yes. It is for that reason that I wanted to bring out that there was in fact further consideration given by both parties to this proposed joint venture.

By Mr. Connelly:

Q. Did there come a time, Mr. Osborne, when the Capital Appropriations Request Committee expressed a view with reference to the desirability of proceeding with this proposed joint venture?

A. I believe some time in late July of 1960 the Capital Appropriations Committee recommended against proceeding with the joint venture.

Q. I show you Plaintiff's Exhibit 243, a memorandum [fol. 320] entitled "C.A.R. Committee Discussion." Does that "C.A.R." refer to Capital Appropriations Request?

A. Yes, sir.

Q. The date of it is July 29, 1960 and it is written by Mr. R. L. Dietrich as secretary to the C.A.R. Committee. Is that the report to which you just referred?

A. Yes, sir.

Q. And that contained the statement that the committee unanimously recommended that the project should be re-

jected. Was that the report that was made to you at that time?

A. That's right.

Q. What happened next, Mr. Osborne?

The Court: Was it your view, Mr. Osborne, that the terms of your letter of intent of February 11, 1960, permitted a rejection by Olin in July of 1960, if that had been the ultimate decision arrived at after receipt of this C.A.R. Committee discussion?

The Witness: As of this date, yes, sir.

The Court: You mean as of July 29, 1960?

The Witness: Yes, sir.

By Mr. Connelly:

Q. What happened after receipt of that report, Mr. Osborne?

[fol. 321] A. After receipt of that report I considered it and decided that the division had a right of appeal to this particular decision, and a meeting was called, shortly after that report was issued, to hear both sides give me their views as to the pros and cons and whether this should be upheld or the division's recommendation should be upheld.

Q. When you say both sides, to whom do you refer?

A. The C.A.R. Committee that recommended against it and the Chemicals Division which was still recommending in favor of it, because Mr. Block asked for it.

Q. By the Chemicals Division there do you refer to Mr. Block specifically?

A. Well, Mr. Block and his associates in the division, Mr. Logan and others.

Q. I show you now Plaintiff's Exhibit 245, being a document headed, "Penn-Olin Sodium Chlorate Plant," dated August 1, 1960, which starts out with the statement that a special meeting was called by Mr. Osborne to discuss the Penn-Olin proposal, C.A.R., with the number following it, on August 1, 1960. Is that the meeting to which you just referred?

A. Yes, sir.

Q. Does that document set forth the pros and cons that [fol. 322] were stated to you on that occasion as to the desirability of proceeding or not proceeding with the proposed joint venture?

A. Yes, sir.

Q. What conclusion did you reach as a result of that reconsideration?

A. That the joint venture should not go on, from Olin's standpoint, that the return was too low based on the figures that were being given us, and that certain market considerations, were unattractive, and that therefore we should discuss with Pennsalt the abandonment of the joint venture.

The Court: And I suppose the additional reasons which are set forth on page 4 of Plaintiff's Exhibit 245?

The Witness: Yes, sir.

By Mr. Connelly:

Q. Was any further consideration or reconsideration given to the venture by the Olin corporate staff?

A. Yes, sir.

Q. What happened next?

A. After I returned to my office after having rendered this decision, Mr. Block followed me and said, "I am not going to take that because I think this is a good product and is something that we should have," and immediately [fol. 323] proceeded to activate the engineering operations of his own division and to try to bring the rate of return up to a point where the C.A.R. Committee would change its view. He also requested a meeting with the Pennsalt people for some time during the next few weeks to discuss this matter with him.

Q. Following that meeting was there in fact any further submission to you and to corporate staff of any revised figures or estimates?

A. There were before the matter was finally approved, but I do not know whether there were before the meeting with the Pennsalt people.

Q. What next in connection with your consideration of this venture, what happened next?

A. As I recall it the next thing was a meeting with Mr. Drake, the President of Pennsalt, and his associates some time in the middle of August, as I recall, in our New York office to consider or reconsider the decision of February 11 to go into the joint venture.

By the Court:

Q. In other words, to discuss the abandonment of it?

A. To discuss the abandonment, and discuss the problems attendant thereto, because some moneys had obviously been spent during that period.

[fol. 324] By Mr. Connelly:

Q. What happened on that occasion?

A. On that occasion Mr. Drake told us that, first of all, he had gone to his board of directors and had had approval of the project; secondly, that the Pennsalt engineers did not agree with our figures. They felt we were far too conservative and that the rate of production or the rated capacity of the plant would be greater than our engineering staff had said, 25,000, and they felt the capacity was easily 26,500.

As a result, and including the fact that we had been working with Pennsalt for six months on this matter, and the fact that the rate of return appeared to be better, and actually, the capital expenditure to be lower on re-estimates I decided that the thing to do was to review the matter again, which was done in the succeeding week or two, and the capital asset appropriation was approved, I believe, the end of August or early September.

Q. I show you Plaintiff's Exhibit 253, which is entitled, "Capital Appropriations Request," and the date on it is August 29, 1960, and ask you whether that is the formal approval of which you just testified?

A. Yes.

Q. You mentioned in your testimony earlier, Mr. Os-
[fol. 325] borne, the arrangements that you contemplated for financing Penn-Olin. What are the present financial arrangements under which Penn-Olin is in existence?

A. Unfortunately because of the action by the Government it has not—it has been impossible to have any outside financing, and both Pennsalt and we have put up our share of three and a half million plus each.

Q. That three and a half million is currently on the Olin balance sheet, is it not?

A. Yes.

By the Court:

Q. It is an investment, I suppose?
A. It is an investment.

By Mr. Connelly:

Q. You testified earlier, Mr. Osborne, that following the 1959 recommendation of the Chemicals Division for an independent facility for sodium chlorate and its rejection by the staff that there was no subsequent recommendation made by the Chemicals Division for the establishment of an independent plant. Is that correct?

A. Not that I recall.

Q. In your consideration of the proposed joint venture with Pennsalt in February or the early part of 1960, and again through the summer of 1960, as you have testified, did [fol. 326] you take into account the possibility that Olin might desire to make some independent activity in the field of sodium chlorate?

Mr. Freed: I object, your Honor. It is a leading question.

The Court: Read me the question.

(The reporter read the last question as follows:)

"Q. In your consideration of the proposed joint venture with Pennsalt in February or the early part of 1960, and again through the summer of 1960, as you have testified, did you take into account the possibility that Olin might desire to make some independent activity in the field of sodium chlorate?"

The Court: Overruled.

The Witness: In studying any joint venture you obviously take into account whether or not you would go alone. The answer in this case would be we would definitely not go alone.

By Mr. Connelly:

Q. In February of 1960, or in August of 1960, when the capital appropriations request was approved was Olin then——

The Court: Excuse me, before you go to this.

By the Court:

[fol. 327] Q. I want to see whether I understand your last answer. You say a decision was made not to go alone. I take it that was in the context of a decision to go by the joint venture route?

A. Yes.

Q. Did you make any or face the question of whether if there was no joint venture in prospect or it was impossible for any reason, did you face the question of whether or not you would go it alone?

A. Yes, I did.

Q. What was your decision?

A. The answer was that we would not.

Mr. Connelly: You may examine.

Cross-examination

By Mr. Freed:

Q. Mr. Osborne, when did you make the decision which you just referred to in your answer to the Judge wholly independent of a joint venture that Olin would not go alone?

A. I think that is a decision that—I couldn't possibly give you an exact date that it finally crystallized as a separate decision. It was a series of events that came to an over-all decision that we would not go it alone, and that therefore the joint venture was the one way for us to go [fol. 328] into this business.

Q. Without reference to the joint venture, Mr. Osborne, would you tell the court the circumstances under which Olin addressed itself to the single question, "Will we go into sodium chlorate by ourselves?"

A. I think the only time the corporation—And I would like to, Mr. Free, differentiate between the corporation and the Chemicals Division, because the divisions in our company consider many routes that they like to come down, new products, new processes, and so forth, all of which must be passed on by the corporation.

I am now addressing myself only to the corporate decision, and I think the only corporate decision that was ac-

tually reached was the one in April of 1959, when we decided that we would not go down the route of going alone at McIntosh, Alabama.

Q. Between the decision in April of 1959 with respect to McIntosh, and the time that your company entered into joint venture negotiations with Pennsalt, did you again review on a corporate management level the question of whether or not Olin would go it alone?

A. I do not recall that it was formally proposed, because we had no formal proposal before us. It was certainly a question which I took into consideration in my decision of [fol. 329] going ahead with the joint venture.

Q. Mr. Osborne, following the decision discussed in Plaintiff's Exhibit 34——

The Court: What is that exhibit?

Mr. Freed: Your Honor, that is the minutes, the extracts of the minutes of the meeting of April 23, 1959, notes of the Chemical staff meeting, the Thursday, April 16, 1959.

By Mr. Freed:

Q. Mr. Osborne, you will recall that the court asked you whether these studies referred to on the second page under the letter "F" were made prior to the revision of the Whither Report estimates in October of 1959, and your answer was yes.

Did you personally pass on the results of the re-evaluation under those questions asked on page 2?

A. Not that I recall, Mr. Freed.

Q. Then there was no corporate review of the sodium chlorate project at McIntosh after the studies referred to in Plaintiff's Exhibit 34. Is that right?

A. I do not recall any. As far as I am concerned it did not come up for any decision, as I recall.

Q. I believe you testified with reference to Plaintiff's Exhibit 253, which is the one-page capital appropriations [fol. 330] request document, dated August 29, 1960, that that date on that document represented final approval by Olin of the Penn-Olin venture. Is that correct?

A. Unless you mean the next steps of taking it finally to the board of directors.

Q. Then this did not represent final approval as of August 29?

A. It represented management's final approval with succeeding steps being the procedural steps required to finally get the approvals of the whole corporate entity.

Q. Does corporate approval require your signature?

A. Yes.

Q. Does this document contain your signature?

A. No.

Q. What was the date on which the corporation actually approved the Penn-Olin venture finally?

A. I cannot give you that exact date. I would say it was some time in September.

By the Court:

Q. 1960?

A. Yes.

By Mr. Freed:

Q. Will you return your attention to the Whither Report of April, 1959, which is Plaintiff's Exhibit 32, and on page 45 of that document, to the 11% return on investment men-
[fol. 331] tioned for a plant, a sodium chlorate plant at McIntosh.

Will you tell us when the studies were made which convinced you, as you stated in your direct testimony, that these figures were wrong?

A. I cannot give you a definitive date at all because the only attention or the only place that my attention was drawn to this was the meeting of the Chemicals Division and the staff on April 23, 1959, in which it was decided against going ahead with this; and as far as the studies themselves are concerned I had no knowledge of the studies in detail.

Q. Then you do not know of any written studies whatsoever which reduced the return on investment from 11% at McIntosh. Is that correct?

A. I do not recall them.

Q. Turn your attention now, Mr. Osborne, to page 51 of Plaintiff's Exhibit 32. Excuse me. There are two page

51's to it, April of 1959 and October of 1959, the Whither exhibit.

The first page 51 has a label on it in the upper left hand corner, "Exhibit 30", and the second page which is numbered 51 reads in the upper left hand corner, "Exhibit 30, Revised 10-59."

Is that the revision in the Whither Report of October of [fol. 332] 1959?

A. I would judge so; yes.

Q. Will you tell the court what the return on investment for the sodium chlorate plant at Chattanooga is as revealed by this document?

A. The return on the investment estimated at Chattanooga was 13.1%.

Q. Do you have any studies or know of any studies or documents that impeach the validity of that estimate?

A. I do not know of any formal studies that were made on this because Chattanooga was never in the running. This was merely a Chemicals Division suggestion by which they had placed before the corporation a desire to have an electrolytic plant in the Tennessee Valley. It never came to the corporation for decision.

Q. Does Olin today have under construction an electrolytic plant in the Tennessee Valley area?

A. Yes.

Q. Where is that plant?

A. Charleston, Tennessee.

Q. How far is that from Chattanooga?

A. I do not know. I cannot tell you the exact mileage.

By the Court:

[fol. 333] Q. Is it 25 miles or 100 miles?

A. No, it is probably over a hundred miles, your Honor.

By Mr. Freed:

Q. You would be willing to defer on the distance between the two points to a map?

A. I certainly would.

Q. To your knowledge, Mr. Osborne, were the estimates which are projected in this Whither Report for an Olin sodium chlorate plant at Chattanooga, were they ever re-

vised or modified in the same manner with the same kind of savings that was done in the case of the Penn-Olin venture a year later in August of 1960?

A. I should like to——

By the Court:

Q. Can you answer that question, and then go on with your digression if you like to?

A. The answer is no, but I should like to explain that the Chattanooga sodium chlorate plant was merely an addendum to a chlorine plant which is a very expensive venture, and that without the chlorine plant at Chattanooga there never could be a sodium chlorate plant because the sodium chlorate plant built on grass roots is a highly uneconomic affair, it must be a part and parcel plant to some other plant, and the Chattanooga chlorine plant, to my recollection, did not come up at any time for decision by the corporate staff [fol. 334] or by me.

By Mr. Freed:

Q. What kind of plant is Olin building today at Charleston, Tennessee?

A. A chlorine caustic plant, which was decided upon at a later date.

Q. Mr. Osborne, did Olin bury the Chattanooga, Tennessee project finally at a corporate level, prior to the inception of the Penn-Olin negotiations?

A. I am afraid, Mr. Freed, you have got to have a live body or a body in order to bury it. I do not think this ever became a corporate body.

Q. This never reached the corporate level?

A. Not to my level.

By the Court:

Q. I have not read this Exhibit 32, Mr. Osborne, but do I understand that the Chattanooga project was a project which had the endorsement of the Chemicals Division?

A. It was a proposal, let us put it they way.

Q. With its sponsorship?

A. It had sponsorship, but this was part of an overall program. They also had another chlorine plant on the Des

Plains River in Illinois. They had an expansion of the McIntosh chlorine caustic plant. They had some others that [fol. 335] they proposed, which did not mean in any manner that they had the corporate approval to go ahead.

Q. Didn't these proposals come before whatever corporate body had the responsibility for placing its stamp or approval or stamp of rejection on the propsal? Didn't it come before the corporate body?

A. Yes. And if it please your Honor I would like to explain this, because a number of the other divisions have made specific programmed proposals which have been accepted as a program and voted on through to the board of directors, such as the Brass Division has a programmed six-year capital expenditure program—I am sorry for the redundancy—which has been approved as a program, and they are now working under that program for specific items. The Chemicals Division has never had an approved Whither program.

Q. I am not sure that I quite understand. Let us talk about the Chattanooga project recommendation which is referred to in this Exhibit 32. Did that come before the persons charged with corporate responsibility of approving or rejecting, or did it not?

A. It was described to the staff and to me and no action was taken.

Q. No action, either approving or disapproving?

[fol. 336] A. No.

By Mr. Freed:

Q. Did you participate in the negotiations with Pennsalt prior to the February 11, 1960, joint venture agreement?

A. No.

By the Court:

Q. I am going to come back to my question. Why was no action taken either approving or disapproving action? Why was the matter tabled without action, so to speak?

A. Because, as I recall it, the Whither Report of the Chemicals Division totaled in expenditures somewhat in excess of $80,000,000, and I think it went up from $60,000,000 to $90,00,000 as a whole, which was a sum of money which

we did not have, nor did we feel we could spend in the Chemicals Division on a programmed basis, so the program as a whole was never put into motion, only pieces of it came up from time to time.

By Mr. Freed:

Q. Following preparation of the October, 1959, revision of the Whither Report was the Chemicals Division ordered or instructed by corporate management to drop the Chattanooga project?

A. That I cannot recall.

[fol. 337] Q. Are you aware, Mr. Osborne, that during the negotiations between Pennsalt and Olin preceding the joint venture agreement of February 11, 1960, Chattanooga and Calvert City, were considered as alternatives by the negotiators for the location of a sodium chlorate plant?

A. Not to my own knowledge.

Q. Mr. Osborne, Mr. Connelly asked you whether potassium chlorate and perchlorates had been excluded from Penn-Olin, and your response was that no consideration has been given to them.

Can you tell us whether and in what manner potassium chlorate and perchlorates have been excluded from Penn-Olin?

A. As I recall, the definitive agreements as of today do not include potassium chlorate and/or perchlorates as a joint venturing pair of products.

Q. Then the present understanding of the parties at the moment is that there will be no product at the moment other than sodium chlorate. Is that correct?

That is as far as the matter of other products goes?

A. That is correct.

Mr. Freed: Your witness, Mr. Connelly.

[fol. 338] Redirect examination.

By Mr. Connelly:

Q. Mr. Osborne, would you look again, please, at Plaintiff's Exhibit 32, being the 1959 Whither Report, Chemicals Division. Your attention was called on cross-examination to page 51, which is identified as Exhibit 30, and to the sec-

ond page 51 which is identified as "Exhibit 30, Rev. 10-59."

Will you also look at Plaintiff's Exhibit 34, which is the record of the meeting on April 16, 1959, at which the recommendation of the Chemicals Division with reference to sodium chlorate was acted upon.

At that April of 1959 meeting was the second schedule Exhibit 30, revised, October, 1959, page 51, a part of the document considered by the meeting?

A. The revision?

Q. Yes.

A. The revision was in October, and the meeting was in April.

Q. So far as the meeting in April is concerned, that dealt with the data on the first Exhibit 30 which refers to a chlorine caustic plant at McIntosh. Is that correct?

A. Correct.

Q. And it did not refer to a plant at Chattanooga?

[fol. 339] A. That is right, it did not.

Q. Was there at any time after April of 1959 any revision of the 1959 Whither Report which revised page 18, the first full page of the document?

A. I do not recall it, Mr. Connelly.

Q. Was there at any future time, any time subsequent to April, 1959, any formal revision of the recommendation of the Chemicals Division to reflect the data incorporated on the second Exhibit 30, of October, 1959?

A. I do not believe so.

Q. Was there any meeting at which the corporate staff was called upon or asked by the Chemicals Division to reconsider their recommendation in the light of those October, 1959, revisions?

A. I do not recall such a meeting.

Mr. Connelly: That's all.

Mr. Freed: No further questions, your Honor.

(Witness excused.)

* * * * * * *

JOHN O. LOGAN, a witness called by the defendant Olin Mathieson Chemical Company, being first duly sworn, testified as follows:

[fol. 340] Direct examination.

By Mr. Connelly:

Q. Mr. Logan, are you presently employed by the defendant, Olin Mathieson Chemical Corporation?

A. Yes, sir.

Q. In what capacity?

A. I am a Vice President and General Manager of the Chemicals Division.

Q. How long have you held that position?

A. I have been a Vice President for between two and three years, and General Manager of the Chemicals Division since early this year.

Q. Did you succeed Mr. Block in that position as General Manager of the Chemicals Division?

A. That is correct.

Q. When were you first employed by Olin Mathieson or any of its predecessor companies?

A. I was employed by Mathieson Alkali Works in 1931.

Q. Will you describe briefly the nature of your experience and positions with the company since that time?

A. I started in the research department and was there approximately six years, and then moved into product and market development work for a period of years, finally into the sales department, and was District Sales Manager in [fol. 341] Chicago for a period of time, Assistant Director of Sales to the Industrial Chemicals Division, and eventually into general management.

Q. It has been testified here that the Chemicals Division of Olin itself has certain subdivisions. Will you please describe those subdivisions and the general nature of the products produced and sold by each?

A. At the present time, the Chemicals Division consists of three units that formerly operated as independent divisions. One of these is the Agricultural Department, that formerly was the Agricultural Division, that makes and

sells fertilizer products, insecticides, and other items that go to the farm trade.

The second unit is the Phosphate Department, that was formerly the Blockson Chemical Company, that has a plant in Joliet, Illinois and produces sulphuric acid, phosphoric acid, industrial phosphates for the detergent trade, and related products.

The third segment, and the largest of the three, is the industrial segment that formerly was Mathieson Alkali Works, and then Mathieson Chemical, and then Industrial Chemicals Division. It makes a line of heavy chemicals, sulphuric acid, caustic soda, chlorine, soda ash, ammonia, derived products therefrom, and certain specialty items.

[fol. 342] Q. Have those three divisions or departments that you have just described been in existence since 1958 or 1957?

A. The three units have been in existence independently prior to that time, and at the time Mr. Block was named head of the Chemicals Division several years ago, the three units, plus what is now Organics Chemical Unit, was placed under Mr. Block's responsibility and the three units have been maintained pretty much independently up until this year.

Q. So that there has not been any change in the organization that you have described during the period 1957 through 1960?

A. Only by the elimination of the organic segment that was removed and put into a separate division.

Q. What are the products, since you have mentioned the Organics Division, what are the products which are dealt with by that division of the company?

A. As Mr. Osborne described, this consists of several phases, including certain work in the energy field, certain propellant work for the Government, and also embodies what was formerly a part of the Chemicals Division, namely, a line of ethylene and propylene chemicals, based on natural gas produced at the company's plant in Kentucky.

Q. Do you personally have anything to do with the operation of the Organics Division?

[fol. 343] A. I no longer have any responsibility for that, no, sir.

Q. In connection with the various subdivisions and products of the Chemicals Division, is there a difference be-

tween chemicals which are described as heavy chemicals and those which are described as specialties, in terms of marketing practices?

A. Yes, there is a difference. The so-called heavy chemicals are large volume bulk items that are basic raw materials for industry of all types, and are generally sold to consumers who are industries in all of the ramifications of our economy.

The specialties are generally lower volume items, sometimes trade-marked items and sometimes more complex technically, with rather specialized applications that are sold generally through distribution channels to ultimate consumers as distinct from going directly to industry as a user.

Q. During the period 1957 through 1960 how large a sales force or sales forces has the Chemicals Division maintained?

A. With respect to the three present segments of the Chemicals Division, we have had approximately 50 to 65 people in the field in the area of phosphates and industrial [fol. 344] chemicals, and the argricultural group has had somewhere around 100 people in the field.

Q. What about the geographic distribution of those sales personnel?

A. They are primarily concentrated in the eastern half of the country, in terms of the industrial segment, namely, Blockson and Industrial Chemicals. Mathieson got its origin in the southeast, in Saltville, Virginia, and hence our development has been very largely associated with the southeastern segment of the country.

We also had a very early plant at Niagara Falls, New York, so we had people in the sales capacity in New England and the upper part of the country.

We have never had industrial chemical facilities west of the Mississippi River, except in recent years on the Gulf, and our effort has therefore been concentrated primarily up and down the country in the eastern segment.

In the agricultural marketing organization we do concentrate up and down the central plains states, the Mississippi Valley. We have a few people across the southern tier of the country as far west as California in the agricultural growing areas.

Q. In the industrial chemicals area, have you maintained during this period of time any salesmen on the West Coast? [fol. 345] A. Yes. We have had one salesman on the West Coast for some years, and at various times there has been a second man. He is primarily concerned with our specialty products because we do not ship any heavy chemicals as such to the West Coast market.

Q. Did there come a time in 1958 when Olin undertook to sell sodium chlorate for the Pennsalt Company?

A. Yes, there did.

Q. Prior to that time had Olin engaged at any time in the sale of sodium chlorate?

A. No, sir, we had not sold sodium chlorate prior to that time.

Q. Prior to that time had Olin ever purchased sodium chlorate as a consumer?

A. Yes, Olin has purchased sodium chlorate for a number of years.

Q. In what general quantities have such purchases been made, and for what use?

A. Well, the quantities have varied from rather modest amounts of a few hundred tons per year up to in recent years they have been in the order of 1,000 to 1500 tons per year, and this has been almost exclusively for our plant at Niagara Falls, New York, used in the production of sodium [fol. 346] chlorite.

Q. Will you describe the product sodium chlorite and its use?

A. Sodium chlorite chemically is somewhat akin to sodium chlorate, and it is also chemically somewhat akin to ordinary sodium hypochlorite, which is the chief component of household bleach. It is intermediate chemically between these two compounds. It has therefore bleaching properties, it has oxidyzing properties, it is more stable than hypochlorite and less stable than chlorate, and it has general application as a rather specialized chemical in the bleaching and oxidyzing field.

Q. For how long a time has Olin been engaged in the sale of sodium chlorite?

A. The sale of sodium chlorite began in the middle part of the 1930's, the latter years of the 1930's.

Q. Has it continued continuously since then?

A. Yes, it has continued since that time.

Q. What were the end uses for which it was initially created and sold?

A. It was initially developed because it had been reported in the technical literature, and our research had confirmed these reports, that sodium chlorite and chlorine dioxide, [fol. 347] which can be developed from sodium chlorite, had the power of bleaching impurities out of impure cellulose, without damaging the cellulose itself.

In other words, cellulosic material, such as paper or textile, could be treated with this reagent under certain conditions, and you could bleach the product to a high brightness without damaging the basic cellulose fibre itself.

Q. Was it sold then to consumers in the pulp and paper industry?

A. Yes. We attempted to develop its use in the pulp and paper field because it was obvious that in getting to high brightness of paper there were certain damaging characteristics of existing bleaching agents, and we proposed to promote sodium chlorite for the purpose of reaching higher brightness with minimal damage.

Q. What has happened over the years with respect to that promotional plan of the company?

A. Well, it worked reasonably well for a period of time, and sales to the paper industry increased modestly until about the time of the war, 1939 and 1940. They fell off at that stage, and along the way other uses were also being studied, and sales have continued today primarily in other areas of application.

[fol. 348] Q. Did there come a time when the use of sodium chlorite for bleaching pulp and paper products was determined to be not a commercially feasible project?

A. Yes. This developed following the war. One of the first actions taken at the time of the war was the allocation of chlorine, which is the basic bleaching agent.

The Court: What war?

The Witness: World War II, 1939-'40.

Chlorine is an item that has always been put under allocation control during wartime, and at this time the general bleaching of paper was restricted due to the limitations on chlorine and also limitations that were imposed upon the

maximum brightness to which paper could be bleached. So that during the period of the war there was essentially no demand for high brightness pulp, and conventional bleaching agents were entirely satisfactory.

Following the war period, up until roughly 1950, the demand for paper products was sufficient so that there was no competitive pressure to force higher brightness papers. Consequently, there was not much done during the period 1940 to 1950 in the way of producing high brightness paper, and hence there was essentially no market for sodium chlorite for this purpose. It was used as an emergency bleaching agent under certain unusual conditions. [fol. 349] Along around 1950 and in the 1950's, the demand for higher brightness papers developed again, and at this stage the treatment seemed to be adapted to use of chlorine dioxide, for various reasons, rather than a continued use of sodium chlorite. So sodium chlorite was eventually displaced as a high brightness pulp bleaching agent.

By Mr. Connelly:

Q. When did you begin to purchase sodium chlorate for use in connection with your production of sodium chlorite?

A. I don't have an exact date. When we first started making sodium chlorite we did generate some chlorate solutions chemically, and we used these for a period of time, and I would judge it was during the latter part of the 1930's that we started buying chlorate for this purpose.

Q. When you speak of the generation of sodium chlorate in the production of sodium chlorite in your initial process, will you explain how that is brought about?

A. It is possible to take chlorine, which is one of our basic commodities, and react it with alkali, either caustic soda or soda ash, both of which were basic products to our company at that time, and by controlling the conditions you can produce a solution containing sodium chlorate. And for a long period of time we thought this was the way to provide our chlorate raw material for the production of chlorite. We [fol. 350] did this in our early pilot plant operations and in our early commercial operations.

Q. What were the considerations that led you to abandon that process in favor of purchasing sodium chlorate from others?

A. Well, there were several. First of all, it is a pretty messy operation. It is not a nice thing to carry out in the plant. You tend to get foaming and spillage over your tanks, and a lot of operating difficulties. The main reason is that you do have a saturated solution of sodium chloride present when you chlorinate that way, and this is somewhat objectionable. You also have limitations on the concentration that you can make conveniently, and you have handling problems, and so forth.

But the major factor really is the fact that the raw materials going into sodium chlorate produced this way are more valuable when sold in their natural form rather than converting them to chlorate. So that as long as we could sell our chlorine and caustic or soda ash, there was no economic incentive to turning them into sodium chlorate.

Q. Apart from that transitional production of sodium chlorate that you have described in connection with the production of sodium chlorite, has Olin ever engaged in the production for commercial use of sodium chlorate?

[fol. 351] A. No, sir, it has not.

Q. Reference has been made in prior testimony, Mr. Logan, to processes described as Mathieson processes, one for the generation of chlorine dioxide and the other for the use of chlorine dioxide in the bleaching of pulp and paper. Will you please describe first the process identified as the Mathieson process for the generation of chlorine dioxide?

A. The process as it presently is operated is the result of a number of years of evolution, going back to the original process that we used in our sodium chlorite plant. As it is now operated, it consists essentially of reducing a sodium chlorite solution by the introduction of sulphur dioxide under controlled conditions of concentration and temperature, acidity and so forth, and the chlorine dioxide is evolved from this generator.

Q. Does Olin own patents on either the process, the generating process, or equipment for the process?

A. During the years since the early '30's Olin and its predecessor Mathieson applied for and received a number of patents in the area of chlorine dioxide generation. Some of these are still in force, and some of them have expired.

Q. What has been the practice of Olin Mathieson with re-

ference to offering the use of that process to the pulp and [fol. 352] paper industry?

A. The chlorine dioxide generation process has been offered to the pulp and paper industry in recent years on a free basis with some service on our part to adapt the operating conditions to the customer's specific requirements and conditions that prevail in his mill.

Q. Did Olin ever offer the use of that process on a royalty basis to paper mills in the United States?

A. We never offered the process for generation on a royalty basis to mills.

Q. Is that process available today to any paper mill that may request it?

A. Yes, it is.

Q. Are there other processes for the generation of chlorine dioxide for the same purpose now in existence?

A. There are a number of processes by which chlorine dioxide can be generated. The ones commercially available today are quite limited. There is the so-called Mathieson process, there is the Solvay process, there is a modified Mathieson process known as the Rapson process.

Q. You mentioned the Solvay process. Is that the Solvay Division of the Allied Chemical Corporation?

A. Yes.

[fol. 353] Q. How does that differ, just in general terms, from the Mathieson process?

A. The primary difference is in the second major ingredient, namely the reducing agent, and the Solvay process employs methanol for that purpose, whereas the Mathieson process uses sulphur dioxide.

Q. What about the Rapson process?

A. The Rapson process is essentially a modified version of the Mathieson process where the conditions in the generation solution are modified and controlled in conformity with the Rapson ideas as to maximum or optimum operation.

Q. Is that Rapson process identified with any particular company or producer?

A. It is now associated with the Hooker Company. Dr. Rapson having been a Canadian who developed this process in Canada.

Q. Are all three of those processes that you have men-

tioned, the Mathieson, Sulvay and Rapson, available generally to the pulp and paper trade today?

A. As far as I know they are.

Q. Has that been true for the past several years?

A. Yes, this has been true.

Q. With reference to the Mathieson process for the use [fol. 354] of chlorine dioxide in the bleaching of cellulose paper pulp, will you state or describe that process, please?

A. Here again there have been a number of processes and modifications developed through the years. It essentially consists of reacting chlorine dioxide with the cellulosic material being bleached, whether it be paper pulp or some other cellulosic material, under conditions of concentration and temperature that produce the bleaching action. The conditions vary considerably from place to place depending upon the local circumstances.

Q. Has Olin or its predecessors held patents with reference to that bleaching process?

A. Yes. We have had a number of patents covering the bleaching of cellulosic materials.

Q. What has been the policy and practice of Olin with reference to the licensing of that process?

A. Going back some years there were certain immunity agreements made with some of the paper companies because we did have valid patents in this field of pulp bleaching, and we made immunity agreements with a number of the companies which simply stated that in view of Mathieson's patents and the use of these procedures under conditions that were described in the Mathieson patents that we, Mathieson, would not sue the paper company and they had the free usage or had the usage of these patents, so to speak.

[fol. 355] Q. Originally was there any royalty or fee arrangement with reference to that grant of immunity?

A. Yes. There was a modest fee. I think there were two fees depending upon the size of the mill and the number of tons to be bleached.

Q. Was there any change in that practice during the years?

A. Yes. Eventually while this practice was in operation the Solvay process was developed and promoted on a free basis and was, in a sense, given to the paper companies, and eventually we decided that our policy would have to follow

that practice and we waived the fee arrangement in these cases both on new agreements and on those then in existence.

Q. Prior to that change in practice with reference to charging the fees did you enter into a license arrangement with the Pennsalt Chemical Company on the subject of the bleaching process?

A. Yes, we did.

Q. I show you Plaintiff's Exhibit 60, which is a letter dated July 31, 1953, and an enclosed memorandum of agreement made as of the same day between Mathieson Chemical Corporation and Pennsalt Manufacturing Company, and ask you whether that is the agreement to which you refer?

[fol. 356] A. Yes.

Q. Will you please explain how this license agreement came about, and what the arrangement was?

A. This arrangement developed out of the fact that the paper industry in the northwest was beginning to become interested in bleaching and in the use of chlorine dioxide for bleaching purposes, and Pennsalt of Washington, specifically Mr. Shanaman, who was then head of that operation consulted with me about the possibility of securing rights under our bleaching patents, and they had become aware of the fact that we had made arrangements with certain paper mills on immunity under our patents, and this agreement is the result of those conversations.

Q. In connection with your negotiations with Pennsalt in that connection did Mr. Drake ultimately take part in the negotiations?

A. I think Mr. Drake ultimately authorized the arrangement and signed the papers. He did not basically engage in the detailed conversations leading up to the consummation of the arrangement.

Q. Going back for a moment to your testimony on the subject of your purchases of sodium chlorate, it has been stipulated here that during the period 1957 to 1960 those purchases averaged about 1300 tons per year.

[fol. 357] Can you tell us what the purchases of sodium chlorate have amounted to during the current year, 1961, Mr. Logan?

A. I believe that they have approached 900 or 1,000 tons

up through September or until about the first of October. I do not have more recent information.

Q. Have your purchases of sodium chlorate all been made from the same supplier?

A. To the best of my recollection they have all essentially been made from the same supplier.

Q. What supplier is that?

A. This has been first the Oldbury Chemical Company at Niagara Falls, and now Hooker, Oldbury having been absorbed by Hooker.

Q. During the period of the past several years have there been sources of supply of sodium chlorate available to Olin other than Hooker's Niagara Falls plant?

A. Yes, there have been.

Q. What other sources of supply have been available?

A. American Potash at Henderson, Nevada, and Pennsalt as a producer on the West Coast, and more recently both Hooker and American Potash have put plants in in the south.

Q. Has Olin ever purchased, so far as you know, any of its requirements of sodium chlorate from Pennsalt?

[fol. 358] A. I think there may have been some small quantities that went to the agricultural operation for some formulation with which I am not familiar, over the years; quite small quantities.

Q. What plant of Olin Mathieson do you rfer to in that connection?

A. This would probably have gone to our Phoenix, Arizona agricultural products facility.

Q. What about purchasing from the Niagara Falls plant about which you testified earlier?

A. We have essentially purchased all of our material from Oldbury, and then Hooker. I think in recent months we have bought some from American Potash for that purpose.

Q. As a purchaser of sodium chlorate, Mr. Logan, what are the considerations which have entered into your selection of Hooker's Niagara Falls as a source of supply from among the various sources of supply available to you?

A. Since this purchase goes back some 25 years or so, at that time Oldbury was essentially the U. S. producer of sodium chlorate, and being quite close to us, in Niagara

Falls, only about a mile down the road, it was quite natural that we would initially make our purchases from them for that reason.

They were a reliable company, had been in business some [fol. 359] time, had had a reputation in this particular field, and primarily because they were so close to us we recognized the fact that this was an economical arrangement for both parties, and therefore was mutually satisfactory and desirable.

Q. Are there any disadvantages in receiving supplies from suppliers located geographically some distance away?

A. Basically there was some disadvantages. You have the problem of service, and the possibility of interruption of that service. Your scheduling and planning has to take into account the transportation time, the possibility of delay at railroad junction points enroute, and that sort of thing. In an emergency of that nature you might be left without a supplier from a distant point.

The other aspect is an economic one, that when you assess against a product the transportation costs, be they either for the producer's or for the consumer's account, you are in essence decreasing the economic attractiveness of this transaction, and therefore this would be less desirable over the long run. A supplier who was shipping material a long distance might, under varying conditions of the market place, decide that he did not want your business and therefore you would be left without a source of supply. Basically a geographical proximity is an important factor in placing your business.

[fol. 360] Q. In the sodium chlorate business are there any recognized geographical separations between markets?

A. The market in recent years has developed primarily around the paper industry as the largest growing consumer, and the paper industry of our country in recent years has been pretty heavily concentrated in the south and southeast area. The older areas of the paper industry are in New England and the Pacific Northwest has had a substantial paper development over the years; but primarily the big pulp and paper producing area is the Pacific Northwest and the south and southeast section of the country.

Q. Turning now to the arrangements that you made for the sale of Pennsalt sodium chlorate beginning in 1958, will

you please look at Plaintiff's Exhibit 101, which is an extract from the minutes of the division management meeting held on December 2, 1957.

Do you recall being present at that meeting, Mr. Logan?

A. Yes.

Q. That minute refers to a possible sales arrangement with Pennsalt for sodium chlorate. Did you have any discussions with any representative of the Pennsalt Company prior to the date of this meeting on that subject?

A. Yes. My recollection is that Fred Shanaman and I [fol. 361] particularly, and even some others of the Pennsalt organization, had discussed the possibility of such a sales arrangement.

Q. Can you fix the time when that initial discussion took place, approximately?

A. I think the conversations probably go back a couple of years prior to this with certain people. I believe there were some conversations in 1955 concerning the possible sale of chlorate or the possible production of chlorate. And then in 1956 there were other conversations, and in 1957 Mr. Shanaman, who then, anticipated having some additional capacity on the West Coast, decided that he would like to make an arrangement with us to move some of that spare capacity.

Q. Had your prior discussion with Mr. Shanaman and others in the Pennsalt organization related to the subject of chlorate generally, or sodium chlorate in a specific geographical area?

A. They had related to sodium chlorate. There was no emphasis on a specific area other than the fact that the conversations centered around our ability to move the product in the paper industry in the south and southeast primarily.

Q. When that discussion got to the point of a suggestion [fol. 362] by Pennsalt, as reflected in these minutes of December 2, 1957, will you state the substance of the conversations that you had with Mr. Shanaman on that subject?

A. The substance of the conversation just prior to this meeting, and subsequent to it, were based on the fact that I did not want to commit our sales organization to undertake this work unless there was some probability at least that it would continue for a period of time, that we would be properly compensated for the effort and that we had an under-

standing as to whether we were going to do this in competition with other people who were going to be selling their chlorate, and so forth.

Q. What was said on the subject of the length or duration of any arrangement that might be considered?

A. I think this followed a pattern of our thinking with regard to any resale effort. We do not wish to engage in a resale activity if it is just for a brief period of time. There is no purpose in it. There has to be some other purpose behind it or it has to extend for a reasonable period of time so that we can get a return on the effort that we put in during the phases of developing the business.

Q. Prior to this December 2, 1957, date had there been any discussion between you and Mr. Shanaman, or others [fol. 363] in Pennsalt, concerning the possibility that such a sales arrangement might lead to something else?

A. Yes. I think this had been generally in the back of our minds as a possibility.

By the Court:

Q. Wasn't the question whether there had been any discussion between you and Mr. Shanaman on the point?

A. Yes.

By Mr. Connelly:

Q. Specifically in that connection had there been any mention made of the possibility of a joint venture?

A. Yes, I think there had been. I believe that some Pennsalt people other than Mr. Shanaman happened to discuss this possibility with me. I believe this was during 1956.

Q. Had those discussions proceeded to the point of making any arrangement by the time of this meeting in December?

A. No, they were primarily concerned with the growing demand for chlorate in the southern paper industry, and how this demand was going to be handled, what should be done about it, and particularly the rather unattractive aspects of the chlorate business generally, and where this was going to lead to in terms of this growing demand.

[fol. 364] Q. Plaintiff's Exhibit 101 states among the points suggested for consideration as the first point adequate commission rate.

Had there been any discussion between you and Mr. Shanaman prior to this meeting as to the amount of commission to be paid Olin?

A. I do not think there was any agreed upon figure; it was understood that we would be compensated.

Q. On a commission basis?

A. Yes.

Q. You have already told us about your discussion on the subject indicated here as an arrangement of three years duration. Item 3 contains the statement:

> "Commission rate to be altered if we become co-adventurers on subsequent planning."

Does that refer to the preliminary discussions that you just testified to?

A. Yes.

Q. With reference to item 4, exclusive rights on the southern territory, what, if any, discussion had you had with Mr. Shanaman prior to this meeting on that subject?

A. This involved the fact that we had our sales force scattered throughout the south, and they were relatively busy on our own products and we wanted to determine [fol. 365] from him whether we were going to be one of several people who were working for him in this connection, or whether we were going to be the sole party tackling this problem.

Q. Will you also explain item 5 of the technical and trade practices to us?

A. This covers such matters as what was the normal contracting procedure, the transportation allowance arrangement, or the freight absorption arrangement, what type of technical literature was necessary to move this product, and so forth; and whether they were going to supply this to us as a part of this effort.

Q. The minutes conclude with the statement, "After discussion it was concluded that Mr. Logan would follow with Pennsalt."

Did you, following this meeting, get into communication with a representative of Pennsalt?

A. Yes. I was in touch with Mr. Shanaman some time over the next week or tend days.

Q. Did you, during the course of those discussions with

Mr. Shanaman, arrive at any understanding of the arrangement under which Olin would operate?

A. We only clarified the general pattern of the relation and we agreed that the details of this arrangement and the details of handling the business pursuant to this ar-
[fol. 366] rangement should be worked out by some of our associates who would be more directly concerned with the actual effort.

Q. Did you arrange with Mr. Shanaman to have a meeting held between representatives of the two companies specifically your subordinates?

A. Yes. We agreed that Mr. Shanaman's representatives would meet with our people in New Orleans, more or less in the immediate future to work out details of proceeding with this arrangement.

Q. I show you Plaintiff's Exhibit 104, which is a letter dated December 17, 1957, from L. M. Shanaman to Mr. Richardson.

I ask you whether Mr. Richardson is one of the individuals that you asked to participate in that discussion?

A. That is correct. Mr. Richardson was in charge of our sales effort, and this program would be carried out under his jurisdiction.

Q. Did he report to you following the New Orleans meeting on the substance of the details that had been discussed in New Orleans?

A. Yes. He reported in essence the same facts that Mr. Shanaman's letter of the 17th refers to.

Q. That is to say that the Plaintiff's Exhibit 104 reflects, as you recall it, the arrangements and details that
[fol. 367] were discussed at that time?

A. That is correct.

Q. Various items referred to in this letter, Mr. Logan, including paragraph number 1:

> "We can make available to you southern sales organization in 1958 2,000 tons of bulk sodium chlorate."

Had that amount been the subject of discussion between you and Mr. Shanaman?

A. We had discussed the general area of this quantity. I think the exact figure of 2,000 was probably finally agreed

upon by our associates, but we had discussed this general area.

Q. What, if any, discussion had you had with Mr. Shanaman and on the subject of paragraph 2 concerning the sales price to the southern mills which this states, "Will, of course, be determined by the prices established by local competition"?

A. I do not recall that we discussed this point in detail. We assumed that we would sell this product on a competitive basis and that there was a current market price and we would follow that published price unless local competition dictated otherwise, and we would encounter this as we began our sales work.

[fol. 368] Q. Had you had any discussion with Mr. Shanaman on the subject of item 3 concerning the distribution of shipments as evenly as possible over the year 1958?

A. In all this type of operation the matter of evenness of shipment is a problem and he worked on a surplus capacity and would probably be more severely restricted, so this was a matter of discussion.

There again I think the statement that they could ship a maximum of four cars per month was something that his associates and mine agreed upon as being the maximum movement in any one month.

[fol. 369] Q. With reference to the discussion of surplus capacity, I think you told us that Mr. Fred Shanaman had advised you that there would be temporary surplus capacity at the Portland plant, is that correct?

A. As I recall, he said that they were undertaking some effort to expand the capacity of their plant and that once this was achieved he would like a means of moving the product until such time as his own marketing organization in the West, and the demand in that area, caught up more or less to his capacity. So this was believed to be temporary in the sense that it was not a continuing long-term, other than the minimum of the two or three years specified.

Q. Incidentally, Mr. Logan, my attention has been called to the fact that in describing this letter, Plaintiff's Exhibit 104, I said that it was written merely by Mr. Shana-

man. Is that the same Mr. Shanaman, Mr. Fred Shanaman, about whom you previously testified?

A. No; there are two Mr. Shanamans. They are brothers. Mr. Fred Shanaman was head of Pennsalt of Washington, and Mr. L. M.—Leroy, or Roy—Shanaman, was sales manager at that time.

Q. Skipping over the next two or three items on the letter, Item No. 7 refers to an account of Pennsalt's de-
[fol. 370] scribed as the Buckeye Cellulose Mill at Foley, Florida. Had it been a subject of discussion between you and Mr. Fred Shanaman before this letter was prepared?

A. Yes. Mr. Shanaman pointed out that they had been working with this one consumer and that he felt certain that his sales people would want to continue that relationship, and therefore it was excluded, so to speak, by Item 7 of this letter and by agreement with our people.

Q. The letter, Plaintiff's Exhibit 104, does not refer to the amount of commission to be paid by Pennsalt to Olin in connection with these sales. Was that amount subsequently established?

A. As I recollect, this amount was not agreed upon by our associates at this meeting, but it was subsequently established, yes.

Q. Do you recall the amount of commission that was subsequently established?

A. I believe it is 5 per cent, which is a fairly common seller's commission in the chemical business.

Q. Did Olin thereafter enter upon the sale of Pennsalt's sodium chlorate on the commission arrangement that you have described?

A. Yes, we did.

[fol. 371] Q. I show you Plaintiff's Exhibit 116, which is a Sales Bulletin of Olin Mathieson, Bulletin No. 1583, dated February 24, 1958, on the subject of sodium chlorate, and ask whether that is the first sales bulletin issued by Olin in this connection?

A. To my knowledge, this is the first sales bulletin, yes.

Q. It has been stipulated also, Mr. Logan, that the sales made by Olin of Pennsalt sodium chlorate amounted to, in 1958, 1,113 tons; in 1959, 1,329 tons; in 1960, 3,228 tons. In connection with Olin's sales of the Pennsalt sodium chlorate throughout that period of time, has there been

any limitation or restriction imposed upon Olin in terms of the sales of sodium chlorate that it might make?

A. No, not as far as I am aware. There have been no limitations imposed.

Mr. Freed: Your Honor, I wonder if in the course of his questioning Mr. Connelly would designate the stipulation where he refers to a stipulation.

The Court: Very well. Do you want that done with reference to the last stipulation that was referred to?

Mr. Freed: Yes, your Honor.

The Court: Will you refer to it, Mr. Connelly?

[fol. 372] Mr. Connelly: Yes, sir. I should have made that reference. Table No. 4 to the general stiplation, which is Plaintiff's Exhibit 414.

By Mr. Connelly:

Q. Mr. Logan, prior to 1960 had you and your associates in the Chemical Division of Olin given consideration to the possibility of having Olin engage independently in the business of producing sodium chlorate commercially?

A. We had given consideration to the production of sodium chlorate at various times through the years. Obviously, I think this consideration included the alternate of doing it independently as well as other possibilities.

Q. What were the factors that you regarded as significant in your consideration of the advisability as to whether or not to recommend a project of that sort?

A. I suppose the factors included——

The Court: You are supposing this or do you know that these are the factors?

The Witness: I'm sorry. The factors that we would normally use in considering this, and I am sure that were used in considering sodium chlorate, included the fact that we had worked with chlorate over a number of years, both as a user and as a firm in the electrochemical business. We [fol. 373] had actually expended some money in research on the electrochemical problems of making chlorate. We saw that we had a growing market demand, largely from an industry that we had been associated with as a supplier for many years, and that this was something that conceivably we should look rather seriously at.

Q. Were there any difficulties that were brought to your attention in your consideration of those possibilities?

A. The primary difficulty, every time we analyzed it, seemed to be the generally unsatisfactory economic return on any product that we could conceive of. The second aspect was that due to pressure of other electrochemical work, namely, the development of new cells that we hoped to put into some of our larger facilities, we just did not devote any extensive attention to the electrochemical problems of sodium chlorate.

Q. Will you look, please, at Plaintiff's Exhibit 15, being the report described as a Whither Report of the Industrial Chemicals Division, under date of April 4, 1958. Did you participate in the preparation of this report, Mr. Logan?

A. Yes, sir, I did.

Q. Will you state generally what was done by you and by your associates in connection with compiling and presenting the data set forth in your Whither Report?

A. The 1958 Whither Report, being the first formal [fol. 374] report of this nature that had been requested by the corporation and had been prepared by the Division, this turned out to be essentially a report on philosophy, as distinguished from a report making certain specific project recommendations.

In this a number of my associates commented on their own thinking, and we pooled this collective opinion, and most of these specific points I edited myself.

Q. On the page headed Section 4, five pages from the end of the document, there is a reference to chlorates and perchlorates, as one of the products that your division should seriously investigate. Had there, prior to that time, been any serious investigation by your division of sodium chlorate as a possible future product?

A. I don't think it had been serious in the sense of bringing the investigation toward some sort of a conclusion. We had carried on various research work over a period of some years, involving certain phases of electrolytic work in connection with chlorate, but we had not seriously investigated it aimed at bringing it to a conclusion.

Q. This report says, with reference to chlorates and perchlorates, merely that the products should be seriously

investigated. Was there any request made at or about the time that this Whither Report was submitted to the corporate management in 1958 for any comment or approval [fol. 375] or disapproval of that particular facet of the report by it?

A. At this particular time there was no specific recommenation made to the corporation regarding these products.

Q. Now will you please look at the 1959 Whither Report, Plaintiff's Exhibit 32. I call your attention specifically to the paragraph toward the bottom of page 18 beginning, "It is recommended that a sodium chlorate facility . . ." etc. Was that the first recommendation made by the Chemicals Division to the corporate management of Olin on the subject of a sodium chlorate facility?

A. To my knowledge, this is the first time a specific location and proposal as to size had been laid in front of the corporation. We did not consider the Whither Report as such as a specific recommendation asking for permission to proceed. This was merely a statement that in our present—as of that moment—our then current opinion, this was something that deserved further study and analysis and the presentation of a program on.

By the Court:

Q. Isn't it a fact, Mr. Logan, that at the bottom of page 18, and the paragraph to which Mr. Connelly has directed your attention, you do say that it is recommended that a [fol. 376] sodium chlorate facility be installed and such facility be ready for operation in 1961?

A. That's right.

Q. That is a fairly definite recommendation.

A. This is correct, but in the context of the Whither Report as it is operated in our company, this in itself does not become a mechanism of action and it would have to be much more explicitly spelled out what we intended to do.

Q. I understand it is not a mechanism of action, but it reflects a conclusion of the author of the Whither Report?

A. This is correct.

By Mr. Connelly:

Q. What action was taken by the corporate staff with reference to that recommendation on sodium chlorate?

A. As I recall the meeting during which this whole report was presented and discussed, the staff had a great many objections to various phases of our report, and specifically said that they didn't feel that this particular project showed any merit worthy of serious consideration by the corporation at that time.

Mr. Freed: Your Honor, I move that the latter answer of the witness be stricken. It is totally hearsay, it is very vague.

[fol. 377] The Court: Will you read that answer?

(The answer was read back by the Reporter.)

The Court: It seems to me that is just the converse of being vague, Mr. Freed. It is rather specific.

Mr. Freed: Your Honor, I call attention to Plaintiff's Exhibit 34, which was previously discussed with Mr. Osborne, which at page 2—this is the evaluation at the April 16, 1959 meeting—on page 2 there is very specific evidence regarding what the action of the committee meeting was on the date of Mr. Logan's conversation, and Mr. Logan is varying this document.

The Court: He is testifying as to his recollection of what happened. It seems to me that the document you referred to may be very potent ammunition on cross examination to probe the mind of the witness. The witness may conceivably withdraw his testimony or change his testimony, or whatnot. But I shall overrule the objection at the present time.

I shall overrule the motion to strike the last answer.

Mr. Freed: On the hearsay ground?

The Court: Your motion is denied.

By Mr. Connelly:

Q. Mr. Logan, at a meeting to consider these suggestions [fol. 378] and comments by the Chemicals Division, was the procedure followed to deal with all of these matters at a single meeting?

A. The procedure was for the Division to come before

the corporate staff and to make its own presentation of the Whither Report. This could be in terms of reading the report, it could be in terms of individuals from the Division getting up in front of the committee and explaining what various segments meant and the reasons why the conclusions were stated in the report.

There are various techniques by which this was and is being done in the company. These meetings usually, there is freedom of discussion back and forth. Certain members of the committee may comment regarding specific segments, and these comments in some cases are individual, but the collective sum of those comments becomes the staff reaction to the Whither Report in toto.

Q. After you received that action by the staff consideration of this proposal, what if anything did you and others in the Chemicals Division do about the sodium chlorate project?

A. Well, at that time we were under the leadership of Mr. Block, who is a rather independent minded individual, having operated his own company for a number of years, and he didn't like to take negative answers. So he and we in the Division exerted some effort to clearing [fol. 379] up the points raised by the staff in discussion and in their formal report and comment on this part of the program, and we carried out several things in an attempt to clarify this recommendation and put it on more sound basis.

Q. Specifically what was done at that time?

A. The staff had had great concern over the Chemicals Division's capital appropriations request. We had a history at that time of asking for things that we didn't back up in terms of either the capital required to conclude the project or the market and profit performance as projected in the C.A.R.'s. So the staff was quite insistent that we clarify this matter of economics, both as to the cost of the facility, the operating and production costs, the market quantities, and so forth, and we had certain of our people pursue this.

The big factor in producing chlorate is electric power. This is a major cost. Mr. Block felt that we had not yet achieved the kind of power situation that would permit us to properly get the kind of return on a sodium chlorate

plant that we should receive. So he had some studies made about power. Some of us looked for other locations. Some of the marketing people continued their study of how much we could sell, and later this year he [fol. 380] had certain studies made regarding the technical information that might be available to us.

Q. Was any investigation made during that period of other processes of producing sodium chlorate?

A. Mr. Block—this is not another process so maybe I misconstrue your question—Mr. Block did have some studies made about the availability of technical know-how on the electrolytic process other than as we had developed it. There was also some consideration of the possibility of reverting back to the chemical production of chlorate, as we had done in our own plant some years earlier.

Q. Was there any investigation at this point of the possibility of obtaining a workable process in Europe?

A. Yes. Mr. Block had Dr. Wocjik contact the Vickers-Krebs Company, who we had understood had a working process, and certain information in this field, and Dr. Wocjik, working for Mr. Block and reporting directly to him, did develop certain information as to the availability of technical know-how.

Q. Who was Dr. Wocjik?

A. Dr. Wocjik had been previously our Director of Research, and at that time he had pretty much left this capacity and was working pretty much directly for Mr. Block as what you might call a scientific adviser.

[fol. 381] Q. In connection with that investigation did you receive any report that there had been developed through the Vickers-Krebs arrangement——

Mr. Freed: I object to that, your Honor. It is leading.

The Court: I think the question had better be completed, then you may state your objection.

Q. (continuing)—a satisfactory process for the production by Olin of sodium chlorate?

The Court: Now, do you make your objection?

Mr. Freed: Yes, your Honor.

The Court: Is your objection that that suggests a yes answer or a no answer?

I'll overrule the objection.

(The question was repeated by the Reporter.)

A. The reports on this investigation were made by Dr. Wocjik directly to Mr. Block. I did receive some copies of information. I also received some verbal comments regarding the status of this work.

It is my understanding that there were certain arrangements possible whereby Vickers-Krebs would make available technical knowledge to Olin, but they also proposed some sort of a development program to be undertaken be-
[fol. 382] tween the two of us to clarify certain ideas they had regarding altering the process, or the equipment for carrying out the process.

Q. Was there during this period of time any further investigation made of possible alternative plant locations, alternative to the McIntosh plant location referred to in the 1959 Whither Report?

A. Yes. We looked at all of our electrolytic operations as potential locations for this type of facility because we felt that the technology carried out here was necessary to do this as an adjunct to a larger facility. But we specifically were looking for locations that improved the power situation, power being the largest single cost in the production of chlorate. None of our existing facilities, existing electrochemical facilities, had any better power than the McIntosh location and therefore we turned in other directions to see if we could find locations where we could solve the problem of power, and via that the problem of economic attractiveness of this project.

Q. In connection with that investigation was any conclusion reached as to the posible availability of a plant site other than McIntosh?

A. We studied the one location that the company had in the TVA power area. This was obviously an attempt to
[fol. 383] use TVA power, which had a lower rate than was applicable at the plant locations where we were then operating facilities. So we said the corporation—not the Chemicals Division but the corporation—has a plant in Chattanooga, maybe we should look at this facility and see whether or not it would be possible to adapt this operation to that specific location. I personally pursued that matter.

Q. Will you look again, please, at the 1959 Whither Report, Plaintiff's Exhibit 32, and specifically the last two

pages, the final page 51 being identified as Exhibit 30, revised October 1959. That contains, does it not, a reference to Chattanooga both for a possible chlorine caustic plant and for a sodium chlorate plant?

A. That is correct.

Q. That Exhibit 3, or Revised Exhibit 30, replaced Exhibit 30 to the original submission, which is on the first page 51, which refers only to McIntosh as the plant site, is that correct?

A. That is correct, yes sir.

Q. What was the occasion of substituting the second Exhibit 30, the revised October 1959 Exhibit 30, for the earlier one?

A. During the period between thee submission of the [fol. 384] report earlier in '59 and the revision as submitted in October 1959, we had further analyzed the total program of the Division, including chlorate, and had concluded that because of the chlorine situation there were certain changes that we should probably alert the corporation to in connection with the program we had submitted as of April. And the revision was primarily intended to convey the impression that rather than following the program outlined in April on plants other than chlorate, we were going to modify that program. We shifted the location of a large chlorine facility between the April submission and the October revision, and this was a matter of such consequence that we simply wanted to convey to the corporation our thinking regarding this revision of our program.

In submitting that revision we also referred to the possibility of a sodium chlorate plant at Chattanooga, Chattanooga essentially being used as the equivalent of TVA power. This is what it meant, really.

Q. Following the preparation of that Revised Exhibit 30, was there any application made to the corporation for a review or reconsideration of the action taken on the recommendation which had been submitted first in April, 1959?

A. No, there was no formal recommendation made. This was in October. We were already in the process of [fol. 385] preparing the Whither Report for the subsequent year to be presented within the first few months of

1960, and we presumably were waiting to include this revision as a recommendation in the program submitted in the next Whither.

The Court: We will adjourn until 2:30 p.m.

(At this point a recess was taken until 2:30 p.m.)

[fol. 386] 2:30 o'clock p.m., The same date.

PRESENT:

As before noted.

JOHN O. LOGAN (Resumed.)

Direct examination (Cont.)

By Mr. Connelly:

Q. Mr. Logan, turning now to the joint venture with Pennsalt described in the letter of February 11, 1960, I believe you told us this morning that from time to time you had had some general discussions with representatives of Pennsalt prior to that date looking toward the possibility of a joint venture. Is that correct?

A. That is correct.

Q. In connection with your discussions with Mr. Fred Shanaman on the subject of having Olin sell for Pennsalt sodium chlorate during 1958 and 1959 and 1960, had there been any discussion at that time with relation to the length of time during which Olin would have such Pennsalt product for sale in conjunction with any joint venture production?

A. I lost your question as to what time you refer to.

[fol. 387] Q. I don't blame you. I rather lost my question myself. I withdraw it.

You told us this morning that you had had some discussion with Mr. Shanaman concerning the length of time during which Pennsalt production would be available to Olin. Is that correct?

A. Correct.

Q. You mentioned in this connection a period of some two or three years. At the same time that was discussed was there any discussion concerning the length of time that would elapse between then and the construction of a sodium chlorate facility if one were to be constructed?

A. At the time we were discussing the sale of the product there was no specific discussion relating to the construction of a facility, or the date at which time such a facility might be constructed.

Q. I show you Plaintiff's Exhibit 111, being a memorandum dated February 4, 1958, from you to the file on the subject of sodium chlorate. That refers, does it not, to a meeting that you had the day before with Messrs. Drake, Shanaman, and Land in Philadelphia. Is that correct?

A. Yes.

Q. After reference to the Pennsalt intention of going [fol. 388] into the perchlorate business at their Portland plant a paragraph reads or it begins:

> "It is felt that neither OM nor Pennsalt should move in the chlorate or perchlorate field without keeping the other party informed, and I agreed to do so."

Will you please state exactly what the substance of your conversation with the Pennsalt people was on that subject of keeping each other informed?

A. We were discussing the matter of the sale of product and the program of such sales effort, and it was felt by us, and equally so I think by the people we were talking to, that should there be any basic decisions or ideas which would change the relationship down the road we should alert each other to this situation so that we would be aware of circumstances and not continue in the dark in carrying forward the program.

By the Court:

Q. You say it was felt by both parties to the conversation. You mean that thought was expressed——

A. This thought was expressed.

Q. —between you and the person you were talking to?

A. Between Mr Shanaman, Mr. Drake, and myself, yes.

[fol. 389] By Mr. Connelly:

Q. Was anything said on the subject of your being free or not being free to take any action that you saw fit with reference to sodium chlorate?

A. No, there was no reference nor any commitment not to take action. There was merely a reference and a commitment to inform the other party if any decisions were made during the course of this relation.

Q. Any decision on what subject?

A. On either the matter of sales, or the matter of production, or any facet of the business that would affect sales or production.

Q. Was there any other commitment, understanding, or agreement made by either of you with reference to sodium chlorate at that time?

A. No. To the best of my recollection there was no other commitment.

Q. Did there come a time when these very general discussions to which you have testified became specific in terms of a concrete proposal for a joint venture?

A. This became specific when the Pennsalt people approached us at the end of 1959 or in January of 1960, I believe it was, and began to outline their thought that [fol. 390] action should be taken.

Q. Would you state for me now as nearly as you can recall who was it on behalf of Pennsalt who approached you at that time?

A. I think it was Mr. Shanaman who brought the subject up, and it was then followed up with later discussions with Mr. Drake and some others of Pennsalt.

Q. Will you please state as nearly as you can recall the substance of the conversations that took place at that time?

A. As I recall Pennsalt stated that under their——

Mr. Freed: Your Honor, I am not quite clear on which conversations with whom the witness is going to testify about, apart from any hearsay objection.

The Court: This is, as I understand it, a conversation which the witness had with Mr. Shanaman concerning some joint activity in the nature of a joint venture.

Mr. Connelly: Perhaps I can clarify it a bit, if Your Honor please.

By Mr. Connelly:

Q. Was there more than one conversation at the end of 1959 and the beginning of 1960 on this subject?

A. As I recall, Mr. Shanaman, who had been the focal [fol. 391] point of Pennsalt's contact with me certainly, expressed the view that they were approaching a time when we should consider this matter and that therefore a meeting should be gotten together on this subject, and there were other people present at this meeting which took place, as I recall, early in 1960, quite early in 1960.

Q. Can you state who else was present at that meeting; anyone else from Olin?

A. Yes. Mr. Block was present. I don't recollect but I think there were a couple of other Mathieson people present at that time.

Q. What about the Pennsalt representatives?

A. Mr. Drake was there, and Mr. Shanaman, and I believe possibly Mr. Willits.

Q. Do you recall where that meeting took place?

A. This particular meeting I am referring to took place in our New York office.

Q. With that background will you proceed to give us the substance of the discussion that took place?

A. The substance of this meeting was that Pennsalt had continued to evaluate sodium chlorate and had concluded that the time was right for us to decide on a joint venture and, in effect, they proposed that we consider this at this [fol. 392] time, and they presented to us certain economic appraisals of the plant that they would propose we set up jointly and stressed the fact that they thought now was an opportune time to reach a conclusion on this particular project.

Q. Was anything said about the capacity of the plant that was proposed to be constructed?

Mr. Freed: Your Honor, before we proceed I do not believe that the witness in his recap of the conversations he has just testified to has fixed a time. There are apparently two series of conversations, one between Mr. Logan and Mr. Shanaman, and a second one between several people from Olin and several from Pennsalt. I don't believe he has fixed a time for this latter conversation.

The Court: I think this, if the record doesn't already show it, and I am not sure whether it does, Mr. Connelly, perhaps you can ask a question or two which will clarify this whole matter of the times of these conferences if the witness is able to separate one from another in his mind.

By Mr. Connelly:

Q. Are you able to place any more definitely than in the early part of 1960 the time of the meeting with which or with respect to which you are now testifying?

[fol. 393] A. The meeting at which there were several representatives from each company was in the latter part of January 1960, as I recall.

Q. Plaintiff's Exhibit 185, Mr. Logan, is a memorandum dated January 22, 1960, from Mr. Block to Mr. Osborne. Are you able to fix the date of the meeting in which or to which you testified with relation to the date of January 22, and was it before or after that?

A. The meeting was just prior to this; whether it was the day before or two days before I do not know exactly.

Q. You were just about, when the question as to time came up, to complete your statement of what took place at that meeting with specific reference to the question that I asked concerning the capacity or proposed capacity of a sodium chlorate plant.

A. As I recall it, the data presented by Pennsalt was based on a plant with a capacity of approximately 25,000 tons, which was larger than had been considered in earlier projects under study by Olin certainly, and this apparently was one of the factors which increased the economic attractiveness of the project and therefore made it desirable to consider it on that basis as opposed to the earlier studies.

Q. Was there anything said on the subject of the plant [fol. 394] location or proposed plant location?

A. I think the Pennsalt people proposed Calvert City because they had a facility in operation there, and land was available, and this chlorate operation could be added to that very conveniently.

Q. Anything else that you recall concerning the substance of that discussion?

A. We discussed the marketing problem in relation to the larger capacity and analyzed the economic data.

Q. Were there subsequent conversations that you had with representatives of Pennsalt between that time and the date of the initial letter of agreement of February 11, 1960?

A. I don't recall any meetings inbetween.

Q. Following those discussions with the Pennsalt representatives did you, the Chemicals Division, of Olin recommend that Olin go along with the proposed joint venture?

A. Yes. We analyzed the data that Pennsalt had presented and the status of our own thinking and concluded that this was the soundest way to proceed, and we recommended that we proceed with the joint venture.

Q. Will you explain to us the reasons that led you to reach that conclusion with reference to the joint venture [fol. 395] as opposed to a possible single independent venture?

A. The reasons were several in number. In the first place, the larger size plant obviously made the project economically more attractive. The suggestion that it be put at Calvert City solved the problem of lower cost of power which had been an obstacle to earlier projects because Calvert City did have available to it power at a reasonable cost.

We had no problem of technical adequacy because Pennsalt was already running a facility and therefore this obstacle which had been prevelant in our own program was solved by going together with Pennsalt.

Q. What about the process?

A. They had the process in hand based on their experience out West, and we were ready to proceed with it in the shortest possible space of time, so this seemed to be a desirable thing to do.

Q. Following the February 11, 1960, agreement between the two companies what happened so far as you were concerned in the consideration of the matter by the Olin personnel?

A. Our sales people again analyzed the market and their ability to handle production from this proposed plant. We reviewed rather thoroughly the economic data that Pennsalt had given us, compared with our own information,

[fol. 396] tried to detect whether it was reliable or where we thought it might be improved upon. We even reviewed the matter of possibly making chlorate via the chemical means as still an alternate that was in the background.

Q. Did you reach any conclusion with reference to that?

A. On that score we merely substantiated again conclusions we had reached essentially at earlier dates that this was not an economically attractive way to produce chlorate, that it was a downgrading of the raw materials that went into the process, and it was not the equivalent of or in any sense attractive in comparison to a good electrolytic operation.

Q. Did you participate in the discussions with the sodium chlorate evaluation committee that Mr. Osborne appointed on February 11, 1960?

A. Yes. This committee under Mr. Hopkinson's chairmanship met and several of us presented our analysis of the Pennsalt program and our own appraisal of the various factors concerned.

Q. Were you advised of the action taken by that committee on or about the first of August of 1960 in recommending that the program be rejected?

A. I was advised. I was not always in the position of receiving this information firsthand since Mr. Block was [fol. 397] head of the division and some of this he got and sometimes I got it by hearsay, and sometimes I got copies of information.

Q. You were present in court this morning, I take it, when Mr. Osborne testified on the subject of the consideration given by the committee in the capital appropriations request committee?

A. Yes.

Q. What, if anything, happened with reference to the presentation of the proposed joint venture program between August 1 of 1960, when the rejection took place, and late August or September when it was finally approved?

A. Well, this goes back to the original idea that Mr. Block had that this was a chemical with a growing demand and that we should have some part in its development, and his dissatisfaction with the idea of dropping the opportunity, dropping this project which represented an opportunity to get into the business. So he kept after sev-

eral of us in the division to keep active in various directions to bring this thing to a successful conclusion or to receive the approval of our management to proceed along the line proposed.

Q. Was there any revision or were there any revisions made in the substance of the joint venture proposal between [fol. 3[illegible]] the action that was taken on August 1, 1960, and the final approval by corporate management?

A. I do not believe there was an significant change in the letter of intent or the format of the joint venture between those dates.

Q. Was there any revision of the data presented with reference to the proposed plant capacity?

A. Yes. There were two parts or two pieces of information concerning the plant; one was the fact that the engineers decided the plant could quite likely be capable of producing 26,500 tons or about 5% more than the 25,000 tons used in the earlier figures. This obviously would enhance the economic attractiveness.

Secondly, some of our engineering people working with the Pennsalt technicians decided that the cost estimates on which earlier decisions had been based were very conservative and contained some "water" in the trade terminology, and that probably some of the capital cost and some of the operating cost could be taken out, and in practice the results therefore would look more attractive.

Q. Was there any revision of the proposal made with reference to the matter of packaging sodium chlorate in drums?

A. As I recall, we had originally contemplated packag- [fol. 399] ing it in drums, and on subsequent investigation decided that this particular part of the market was secondary in nature and that we would not in the early phases of the plant at least install packaging facilities, that we would start out as a bulk operation.

Q. The February 11, 1960, letter of agreement refers in the first paragraph to a joint venture for the manufacturing and marketing of sodium chlorate, potassium chlorate, and perchlorates. What, if any, discussion had taken place prior to then on the subject of the possibility of including potassium chlorate or perchlorates?

A. It is my recollection that there was very little dis-

cussion prior to this time about the inclusion of those items. We in our analysis of this situation recognized that some of these other materials were in a sense dependent upon the basic sodium chlorate plant and that therefore if there was any possibility, or if there was the desirability of at any time in the future being involved in chlorates other than sodium and in perchlorates that we should probably include those as a part of the general or joint venture arrangement.

Q. What, if anything, happened after February 11, 1960, on the subject of including or excluding those other products?

[fol. 400] A. We, in our own organization, had several conversations about this point, particularly the matter of perchlorates, and during these conversations it became apparent that the inclusion of perchlorates was going to complicate the situation. For example, we learned that Pennsalt either was or had done some work in connection with perchlorate and had an interest in it as a defense item.

Our own Energy Division we discovered had also conducted some studies in connection with their program of propellant fuels. Both of these areas of activity involved certain confidentiality and security matters.

Those of us who were considering the problem decided that if we included these in the Penn-Olin situation we were getting ourselves into an area of complications involving security and confidentiality, and we finally decided just to drop them out of the picture.

Q. Can you place the approximate time when that decision was reached?

A. This was going on during the spring and summer of 1960, and I do not believe I can give you an exact date when we decided that we would drop them out.

Q. I show you now, Mr. Logan, the final agreements dated as of January 2, 1961, Plaintiff's Exhibits 181, 182, [fol. 401] and 183. Did you sign those agreements on behalf of Olin?

A. Yes, I did.

Q. I call your attention to the sales agreement, Plaintiff's Exhibit 182, specifically paragraph 12 of that agreement concerning the accounting for sodium chlorate pur-

chases from third parties for Penn-Olin's account by Olin for sale by Olin, and ask you whether any special arrangement has been entered into with reference to the handling of that accounting problem during the pendency of this litigation?

A. The matter of disposing of this has been suspended in effect and in transmitting these agreements to Pennsalt and to Penn-Olin the letter of transmittal, I believe, contained a clause suggesting that this particular activity be suspended pending the litigation and decision reached at the conclusion of litigation as to what the disposition would be of the account involving material purchased during the development period.

Q. Apart from that matter of accounting which you have just referred to do these agreements set forth the entire agreements between Olin and Pennsalt on the subject of the sodium chlorate joint venture?

A. To the best of my knowledge they do.

Q. When, Mr. Logan, did Olin begin making sales for Penn-Olin?

[fol. 402] A. During 1961 we have made sales for the account presumably of Penn-Olin, subject to the agreement here.

Q. Is that selling process continuing up to the present time?

A. This process is going on today, I hope.

Q. Had there been any solicitation of such sales prior to 1961?

A. We had been selling chlorate for the last several years.

Q You are now speaking of the chlorate of Pennsalt sold by Olin as agent?

A. That is correct.

Q. In addition to that have there been any separate solicitations prior to the commencement of the calendar year 1961 of sales for the account of Penn-Olin?

A. There was solicitation during the latter weeks of 1960 leading to a contractual commitment for the calendar year 1961 against which shipments would be made for the Penn-Olin account.

Q. Were there any purchases of sodium chlorate made for that same account prior to 1961?

A. I do not believe there were prior to 1961.

Q. Was any arrangement made with the American Potash Company on the subject of purchases of sodium chlorate?

[fol. 403] A. Yes. There were some negotiations with the American Potash Company and the conclusion of these negotiations was that material would be available from American Potash during 1961 to be used in developing the sales pattern.

By the Court:

Q. Negotiations between Olin or Penn-Olin and American Potash?

A. Olin was authorized by Penn-Olin to enter into these negotiations.

By Mr. Connelly:

Q. Did you participate in those arrangements and negotiations?

A. I participated in the decision to carry on negotiations. I did not participate in the actual negotiations with American Potash.

Q. What was the arrangement made with American Potash in terms of quantity of sodium chlorate covered, the length of time, place of origin?

A. To the best of my recollection American Potash agreed to make available 2500 tons and an upper figure of 14,000 tons, I believe, during the calendar year in cars to be provided by Penn-Olin; certain freight absorption and economic arrangements be made by American Potash [fol. 404] to cover the sales effort.

Q. When did the Penn-Olin plant begin a production of sodium chlorate?

A. It began production during this past September, the latter part of September, I believe.

Q. Immediately prior to the commencement of production by Penn-Olin what were the producing facilities of sodium chlorate then in existence?

A. The facilities then in existence?

Q. I would say within the United States.

A. The facilities in existenee were the Hooker plant at

Niagara Falls, the Pennsalt plant in Washington, the American Potash plant at Henderson, Nevada, the American Potash in Mississippi, and the Hooker plant in Mississippi.

[fol. 405] Q. Since the announcement of the Penn-Olin venture, has there been any other report of additional production of sodium chlorate to your knowledge?

A. There was a report——

Mr. Freed: I object, your Honor.

The Court: State the grounds of your objection, Mr. Freed.

Mr. Freed: It calls for hearsay testimony, your Honor.

The Court: What do you have to say, Mr. Connelly?

Mr. Connelly: I think if counsel desires to object on that ground it is a valid objection.

By Mr. Connelly:

Q. With reference to the quantity of sodium chlorate available in the domestic market, has there been imported sodium chlorate offered for sale in this country?

A. There has been some imported chlorate over the last several years, yes.

Q. Over the last several years has the volume of imported sodium chlorate risen?

A. Yes. To the best of my knowledge it has risen rather substantially.

Q. Do you have any current data or information on the quantity or volume of such imports over the past three years?

[fol. 406] A. I think the last year's imports—that would be 1960—were in the order of 4,000 tons. The prior year, which would be 1959, I believe it was in the order of 2,500 tons. And in the prior year it was about 1200 or 1300 tons.

Mr. Freed: Your Honor, I move that the last question and answer be stricken as already covered by the stipulation which is marked as Plaintiff's Exhibit 414, and is entitled "General Stipulation, Set 1." Item 12 in this stipulation reads as follows:

"Sales in the United States of sodium chlorate produced outside the United States have not been sub-

stantial during the last five years. These are as follows. . ."

Then the stipulation lists the exact tonnage of imports form 1956 to 1960.

The Court: Is it your point that this testimony varies from the stipulated facts, or is your objection that the testimony is cumulative?

Mr. Freed: I object on the ground that the testimony varies. It varies first of all in the characterization of the significance or substantiality, which has already been the subject of the stipulation.

The Court: Well now, the testimony was that in 1960 [fol. 407] there was 4,000 tons imported?

Mr. Freed: That is correct.

The Court: What is the stipulation?

Mr. Freed: It reads——

Mr. Connelly: Will you read the whole stipulation, the preliminary paragraph?

The Court: I have asked the question what does the stipulation say about importation of foreign sodium chlorate in 1960.

Mr. Freed: In 1960 the tonnage given is 4,152 tons.

The Court: There is a 150 ton variance?

Mr. Freed: Yes. The variance is insignificant.

The Court: How about 1959?

Mr. Freed: 2,596.

The Court: A variance of 96 tons?

Mr. Freed: And 1,322 tons in the prior year.

The Court: A variance of 22 tons. Your objection is the small variance?

Mr. Freed: I am sure the parties will agree that the stipulation governs, but the objection does go to a change in position on the part of the defendants from a stipulation in which the parties agreed that these are not substantial in terms of the sodium chlorate market. The other defendants are putting on testimony to change their evaluation of that.

[fol. 408] The Court: Was there testimony that the importations were substantial?

Mr. Freed: That was my recollection, your Honor.

The Court: Let me say this, and I think that it can be

understood by us all, that if there is any variance between the stipulated facts and the testimony of the witness, that the trial will be controlled by the stipulated facts in the absence of some showing why the defendants should be relieved from the stipulation.

Mr. Connelly: Your Honor, this is not consequential at all, but I think part of the misapprehension comes from the fact that this stipulation is not a stipulation of agreed facts. It is a stipulation that a competent would, if called, testify to those facts. I simply wanted to bring out not by way of departure from that but simply by way of the fact of experience by Mr. Logan that he knows of the existence of imports in this market.

The Court: Mr. Freed, your point is that the stipulation says that the importations were not substantial or were substantial?

Mr. Freed: The stipulation says that the importations were not substantial.

The Court: Or does the stipulation say that if a competent witness were called he would testify that the im-[fol. 409] portations were not substantial?

Mr. Freed: The preamble, your Honor, which Mr. Connelly asked before that I read, states as follows:

> "Plaintiff and defendants hereby stipulate solely for the purpose of this case and for no other, and without waiving objections as to relevancy, that competent witnesses if called by plaintiff or defendants would testify to the following."

The Court: And that the importations were not substantial?

Mr. Freed: That is correct.

The Court: They were not substantial?

Mr. Freed: That importations were not substantial.

The Court: I don't recall any testimony that the importations were substantial, but the record will show what it shows on that.

Mr. Connelly: There is not any controversy between us concerning it, your Honor.

The Court: Is it stipulated that the importations were not substantial, Mr. Connelly?

Mr. Connelly: Yes.

[fol. 410] The Court: And that is stipulated by all defendants, Mr. Potter and Mr. De Lone?

Mr. Potter: Yes.

Mr. De Lone: Yes, your Honor.

The Court: Then your objection, I take it, is withdrawn?

Mr. Freed. Yes, your Honor.

By Mr. Connelly:

Q. Mr. Logan, during the entire period of the arrangements that you have described with Pennsalt, has there been any understanding that you are aware of, any understanding or agreement limiting or restricting the freedom of Olin to sell sodium chlorate or to manufacture sodium chlorate?

A. No, there is no agreement imposing any restrictions of that sort.

Q. Has there since the creation of Penn-Olin been any lessening of competition in the sale of sodium chlorate?

A. To us it seems as though there has been some increasing of the competition.

Q. Are there any facts known to you to suggest the likelihood of lessening competition in the foreseeable future?

A. My experience would indicate that this is going to [fol. 411] become more competitive as additional capacity comes in, as additional producers come in, and I think we are in for some competition on this product.

Mr. Connelly: You may examine.

Cross-examination.

By Mr. Freed:

Q. Mr. Logan, you testified on direct that prior to the Penn-Olin joint venture the parties contemplated the production and sale at some time of potassium chlorate and perchlorates, but some time after the joint venture agreement was entered into, the contemplation of the parties changed, is that correct?

A. I don't believe it is quite correct as you stated it.

Q. Would you correct me?

A. I think I testified that when we came to setting up the letter of intent and the original concept here, we

thought we should include things other than sodium chlorate, and when I say we thought I am speaking primarily of Olin. I don't know what Pennsalt thought about this. We thought that other chlorate and perchlorate should probably be included because perchlorate is basically made from chlorate and its inclusion would therefore make a [fol. 412] complete package.

The Court: Is the same true with reference to potassium chlorate?

The Witness: There is some relation. Potassium chlorate is in some cases made by interchange with sodium chlorate, yes.

By Mr. Freed:

Q. And potassium chlorates and perchlorates were mentioned in the letter agreement of February 11, 1960, which has previously been identified as Plaintiff's Exhibit 175, is that correct?

A. I believe this is correct.

Q. Will you tell the court when the master agreement, or, the definitive agreement which purported to replace this joint venture agreement of February 11, 1960, was executed by you?

A. The basic agreement came along in September, I think it was, of that year.

Q. Was executed in September of that year?

A. No. The agreement was pretty well decided, and I think that is one of the agreements that was executed more recently.

Q. In October of 1961?

A. I believe I am correct on that. I am not sure.

[fol. 413] Q. Mr. Logan, were you party to any conversations subsequent to the filing of this lawsuit with respect to a limitation on the scope of activities of Penn-Olin Chemical Company, conversations with your attorneys?

A. No. If I understand your question, I was not.

Q. You are not aware then of transactions which occurred in court and pursuant to conferences in court with respect to limiting the activities of Penn-Olin Chemical Company to sodium chlorate?

The Court: I am not sure that I understand the question. I want to be sure that Mr. Logan understands the question. Can you restate it a little more simply and a little more tersely, if possible?

You are asking now about Mr. Logan's knowledge of proceedings before me?

Mr. Freed: Yes, your Honor.

The Court: At which there was present counsel for Penn-Olin?

Mr. Freed: That is correct, your Honor.

The Court: And whether counsel for Penn-Olin related to Mr. Logan, or anyone else related to Mr. Logan, what transpired during those proceedings. You are asking Mr. Logan specifically about certain proceedings before me. What were those proceedings which was the subject of [fol. 414] your question?

By Mr. Freed:

Q. In February, 1961, Mr. Logan, proceedings were held in this court, in the Chambers of Judge Steel, with respect to the scope of the activities of Penn-Olin Chemical Company, and particularly with reference to the engagement by Penn-Olin in activities other than the construction of a plant for the production of sodium chlorate.

Are you aware of any conversations that took place in the confines of your company, either company personnel or company attorneys, with respect to a limitation on the activities of Penn-Olin Chemical Company following the conferences in court?

The Court: Number one, my memory is so bad and your question is so vague that I don't remember just what discussions there were before me. It may be that for effective examination you want to keep your question as broad as you stated it. If that is not necessary for your effective examination, I think it would be more meaningful if it were more specific.

Do you want a recess while you get some papers?

Mr. Freed: It will only take a moment, your Honor.

By Mr. Freed:

[fol. 415] Q. Mr. Logan, I would like to read to you from paragraph 14 of the Government's original complaint in this action filed on January 6, 1961. Paragraph 14 reads as follows:

> "On February 25, 1960, Penn-Olin Chemical Company was incorporated under the laws of the State of Delaware. Penn-Olin is authorized to engage in the production, distribution and sale of chemicals and chemical compositions of any state, form, nature, mixture or description, including sodium chlorate, potassium chlorate, and perchlorates."

There is more to the paragraph that is not pertinent to this question. At the first pretrial conference held in this case, a discussion arose among counsel and the court with respect to the furtherance by Penn-Olin of activities under that broad authorization. My question to you is whether you were party to any conversations internal to Olin or Penn-Olin Chemical Company with respect to a limitation of those activities alleged in the complaint?

Mr. Connelly: If the court please, I object to that as immaterial. I think if counsel desires to ascertain whether the exclusion of potassium chlorate and perchlorates took place prior to the filing of the complaint herein, or subsequent thereto, and perhaps because of, I have no objection to his asking that question. But as to what communications passed between counsel and client with reference to proceedings that took place here in court, I don't think that has any proper place in the examination.

[fol. 416]

The Court: I will overrule the objection.

The Witness: Mr. Freed, I have no recollection of this specific point having been discussed with me. As I think I previously testified, last year, that is, in 1960, internally in Olin we had concluded that the inclusion of perchlorate and potassium chlorate was not necessary or desirable, and therefore we had in effect eliminated these two materials prior to that time.

By Mr. Freed:

Q. And the agreement which eliminated those other chemicals is the agreement that was executed in October, 1961?

A. That's correct.

Q. Can you tell us whether prior to October, 1961, the parties had entered into any agreement, formal agreement, rescinding or modifying the argeement of February 11, 1960?

A. I know of no formal agreement to this effect.

The Court: What was the date when the suit was filed?

[fol. 417] Mr. Freed: January 6, 1961.

The Court: Is this a convenient place to take a ten-minute recess or would you like to continue your examination before we recess?

Mr. Freed: Now would be as good a time as any, your Honor.

(At this point a brief recess was taken.)

[fol. 418] OFFER IN EVIDENCE

Mr. Freed: Your Honor, with respect to the line of questioning about the revision of the original joint venture agreement, to which we were addressing ourselves prior to the recess, I would like to either offer into evidence or simply read into the record, if there is no requirement that it be offered into evidence, a provision of the Pre-Trial Order No. 1 which pertains to this point.

Is it necessary to place a pre-trial order in evidence?

The Court: If anyone wants to discuss it—how do defense counsel feel about that? Is it formally a part of the record, these pre-trial orders, unless they are actually introduced in evidence?

Mr. De Lone: I wouldn't think its status is any different from any other pleadings.

The Court: I know in Philadelphia you introduce pleadings formally, Mr. De Lone, admissions in pleadings and so on.

Mr. De Lone: Yes.

The Court: My recollection is that under the old common

law the pleadings were not part of the record. What is your view about it, Mr. Connelly?

Mr. Connelly: That would be my view, yes sir. If any portion of this is admissible in evidence it ought to be [fol. 419] offered in evidence.

The Court: Do you want to interrupt this cross examination to introduce it at this time?

Mr. Freed: I would like to, your Honor.

The Court: Do you have any objection to the cross examination being interrupted for the purpose of introducing this?

Mr. Connelly: No, sir.

The Court: Very well. Read it into the record and it will be deemed to have been introduced in evidence, without objection.

Mr. Freed: I am reading now from the pre-trial order number 1, dated February 24, 1961, to be designated as Plaintiff's Exhibit 415.

The Court: I don't know that you need even give it an exhibit number. If you read it into the record it will be deemed to be part of the record by stipulation, without objection.

Mr. Freed: That's fine, your Honor.

Paragraph 4 of the pre-trial order number 1 reads as follows:

> "Plaintiff and defendants shall explore the possibility of stipulating to a limitation upon the activities of the joint venture."

The Court: Wasn't that in connection with some talk [fol. 420] about an injunction, the issuance of an injunction?

Mr. Freed: That is correct, your Honor.

The Court: Rather than about the products to be manufactured under the agreement?

Mr. Freed: The injunction pertained to activities outside of the construction and operation of the sodium chlorate plant itself.

The Court: I don't know that that stipulation means much to me out of context.

Mr. Freed: Unfortunately, your Honor, the first pre-trial conference was the only one that was not transcribed,

and therefore the recollection of counsel and the Court is all that we have to record.

The Court: My memory is not a good memory, Mr. Freed, but to the extent that I have any it seems to me that maybe the Government did make an application for injunction to prevent certain activities, whether it was construction or whether it was sales activities or financing activities, and it was determined that in lieu of pressing the application for an injunction the parties would get together and see if they couldn't agree to restrict their activities under the joint venture agreement, the consummation of it, so to speak, in such a way that it would be satisfactory to the [fol. 421] Government and make it unnecessary to continue the motion for a preliminary injunction.

Is my memory off about that?

Mr. Freed: Your Honor's recollection is correct, but the Government did not make application to enjoin the construction or operation of the sodium chlorate plant as such.

The Court: Was there a formal application for an injunction?

Mr. Freed: There was not, your Honor.

The Court: Was there a prayer for a preliminary injunction?

Mr. Freed: There was.

The Court: What was the prayer in the complaint, because that's what brought it to the fore, it seems.

Mr. Freed: Paragraph 6 of the prayer in the original complaint read that a "preliminary injunction issue against defendants, their representatives and agents, to prevent and restrain them from proceeding jointly with the construction or operation of Penn-Olin's plant and facilities, or with the carrying out of any other provisions of their agreement, pending final adjudication of the merits of this complaint."

At the time of the first pre-trial conference the Government made the point, your Honor, that the proceeding with [fol. 422] construction by defendants should be at their own risk, otherwise there would be a need for an injunction. And your Honor stated at that time, I believe with the approval of the defendants, that of course the de-

fendants if they proceeded would proceed at their own risk with construction.

The open question that remained at the pre-trial conference related to a limitation on the other activities authorized in the letter agreement and the certificate of incorporation under which the parties were authorized to exchange information with regard to other products authorized under the agreement and under the charter, and your Honor's proposal at that time was that the parties explore the possibility of limiting the activities of the joint venture in order to avoid the need to pass on an injunction against activities apart from the construction and operation of the sodium chlorate plant.

That was done by the parties and no injunction was thereafter sought by the Government because a draft agreement similar to the one that Mr. Logan testified executing in October 1961 was presented to the Government as the manner in which the defendant proposed to limit the transaction.

The Court: Was there not some sort of report filed with me as to what was done and what conclusion had been reached? Am I right about that, Mr. Copley, that that [fol. 423] was the subject of some report or some later pre-trial order?

Mr. Copley: We have it here, your Honor.

Mr. Freed: Your Honor's recollection is better than that of counsel. Plaintiff filed a report to the Court dated March 30, 1961, entitled "Plaintiff's Report to the Court."

The Court: What does it say just about this provision that you have read into the record?

Mr. Freed: In paragraph 4 our report stated:

> "Pursuant to Paragraph 4 of the pre-trial order, the parties have explored the possibility of limiting the activities of the joint venture pendente lite. Defendants have submitted to plaintiff a proposed revision of their February 11, 1960 agreement, which when executed will limit the venture in a manner similar to that sought by stipulation."

I believe that that was the last mention of the matter of an injunction, or a limitation of activity.

The Court: I think, to have this record on the subject

complete, it should be understood that the portion of the report just read into the record should likewise constitute part of the record.

Mr. De Lone: Was not that report actually, to the extent it was read, reflected in the minutes or record of the second pre-trial conference?

Mr. Freed: It may have been.

[fol. 424] The Court: This report was filed in the court. It was a report of what was done after the first pre-trial conference.

Mr. De Lone: I didn't realize that, sir.

The Court: Very well. Proceed with the examination.

Mr. Freed: Might I ask your Honor whether the colloquy about admissibility of pleadings as part of the record applies to the complaint and answer? It was our understanding that the complaint and answer were a part of the record without being introduced.

The Court: Mr. Potter will bear me out on this. There have been cases in the Court of Chancery, I am sure, where the Court and counsel have considered admissions in the pleadings as though they were in the record even though there was no formal introduction. But I think if you are going to really be technical about it, probably you should introduce formally the pleadings which are admitted that you desire to rely on. I know that is the procedure which Mr. De Lone has operated under in Pennsylvania.

Mr. De Lone: I don't, however want to be technical, sir.

The Court: No, but the view has been expressed before, expressed by Mr. Connelly, that the defendants would prefer, so that they know what they have to meet, that [fol. 425] there be a formal offer of allegations of the complaint which are admitted by the answer which the plaintiff wishes to rely upon in support of its case.

There is no objection to the plaintiff reopening its case, is there, to supplement the record which it previously made by offering such admissions as it wishes to rely on?

Mr. De Lone: No, sir.

The Court: I don't mean at the moment to do that but at some convenient time.

Mr. Connelly: Your Honor, I did not by my remarks intend to convey the impression that I wanted to have portions of the pleadings offered in evidence. As far as we

are concerned we have assumed that the pleadings are part of the record. My remarks were made with reference to excerpts from pre-trial orders, with reference to answers to interrogatories, and that sort of thing.

STIPULATION RE PLEADINGS

The Court: All right. Then can we have it stipulated, so there is no question about it, that the pleadings in their entirety are considered to be part of the record in the case?

Mr. Freed: The Government will so stipulate, your Honor.

Mr. Potter: Defendants will so stipulate.

The Court: And I notice that Mr. Connelly and Mr. [fol. 426] De Lone nodded acquiescence.

By Mr. Freed:

Q. Mr. Logan, I believe you testified on direct examination as to purchases of sodium chlorate by Olin at Niagara Falls in 1961. Can you recall for us what the amount of those purchases was?

A. I think the question or the answer pertained to the amount purchased from Hooker, and I believe this was around 900 to 1,000 tons in the first nine months. I don't have the figures for October or November to date.

Q. The parties stipulated, in Plaintiff's Exhibit 414, Item No. 5, that Hooker Chemical Corporation sold to Olin and shipped to Olin's plant at Niagara Falls for consumption by Olin sodium chlorate in the quantities and dollar volumes indicated opposite each year, as follows; and for 1961, the six-month figure was 560 tons. It is your testimony that several hundred tons were shipped following June of 1961 but you do not recall the precise amount, is that correct?

A. That is correct. I think the third quarter figure brought the total up to slightly in excess of 900 tons.

Q. Can you tell us whether any sodium chlorate was shipped to Olin's plant at Niagara Falls prior to 1961 by any producer other than Hooker?

[fol. 427] The Court: Do you mean Niagara Falls?

Mr. Freed: At Niagara Falls.

A. We have recently, I believe, taken in some shipments from American Potash.

Q. Can you tell us where those shipments from American Potash emanated?

A. I don't know that for certain. I assume they came from——

The Court: Don't make an assumption.

Mr. Freed: To enlighten the record at this point I would like to read into the record again from Plaintiff's Exhibit 414, Item 9, the following stipulation:

"Olin bought from American Potash, and instructed American Potash to deliver from Henderson, Nevada, to Olin's plant at Niagara Falls, New York, and American Potash shipped to Niagara Falls on the dates listed below the tons of sodium chlorate set opposite each date:

"December 29, 1960—50 tons.

"February 8, 1961—150 tons."

By Mr. Freed:

Q. Are those figures correct to your knowledge, sir?

A. They are correct as far as I know, but I haven't seen those figures.

Q. You have previously testified that the purpose of [fol. 428] sales of sodium chlorate from American Potash to Olin was for the purpose of developing the sales pattern for Penn-Olin, is that correct?

A. This is essentially correct, yes, sir.

Q. Mr. Logan, I believe you testified on direct examination that Olin produces ethylene at its plant in Brandenburg, Kentucky, is that correct?

A. It does not produce ethylene for sale. It generates ethylene which it uses internally in the production of other ethylene products.

Q. Is ethylene oxide one of the products that Olin produces at Brandenburg, Kentucky?

A. Yes, sir.

Q. Mr. Logan, were you present this morning during the testimony of Mr. Osborne with respect to the reasons upon which Olin entered into the Penn-Olin venture?

A. Yes, sir.

Q. Do you recall that one of the reasons given by Mr. Osborne to justify a joint venture in the case of Penn-Olin was that Olin lacked productive experience in producing sodium chlorate?

A. Yes, sir.

Q. Mr. Logan, is Olin engaged in a joint venture for the production of ethylene oxide?

[fol. 429] A. Olin is engaged in a venture with the Sun Oil Company that is building a plant to produce ethylene, and as a derivative of that ethylene, ethylene oxide.

Q. Were these products the original products of the Sun-Olin joint venture?

A. No, sir.

Q. What was the original product of Sun-Olin?

A. The original product of Sun-Olin was urea.

Q. Was that product manufactured by either Sun or Olin prior to the joint venture?

A. No, sir.

Q. But Sun-Olin's second product, ethylene and ethylene oxide, do duplicate Olin's own production at its own plant in Kentucky, is that correct?

A. This is only a partial duplication.

Q. By "duplication" I mean same product.

A. Yes, with the exception, Mr. Freed, that Sun-Olin's primary operation in the ethylene area is the sale of ethylene as such. The production of ethylene oxide is a secondary part of the program. Olin itself does not sell any ethylene.

[fol. 430] Q. Then it is a fact that Olin has no fixed policy with respect to engaging in a joint venture on products which it already is able to produce itself. Is that correct?

A. I do not know that it has no fixed policy. These are subjected to the same analyses as any ventures we would enter into.

Q. But it has not followed that particular policy in the case of Sun Olin?

A. Which policy?

Q. A policy of refraining from interfering—from entering into a joint venture with respect to a product which it can and already does produce?

A. That is correct.

Q. Is Olin also engaged in a joint venture called "Ormet"?

Mr. Connelly: If the court please, I object to this as immaterial. I have not wanted to interrupt and place any undue limitation, but I think we can go far afield. We have a single lawsuit to try here.

The Court: What is the pertinence of this, Mr. Freed?

Mr. Freed: Your Honor, the pertinence is twofold.

The Court: As it relates to the direct examination, related to the direct examination, its pertinence to the direct [fol. 431] examination?

Mr. Freed: The direct examination of Mr. Osborne, coupled with that of Mr. Logan as relates to ventures——

The Court: Let's limit it to Mr. Osborne. He is the man you are cross-examining, or Mr. Logan.

Mr. Freed: Mr. Logan.

The Court: What is the testimony of Mr. Logan that this bears upon?

Mr. Freed: The pertinency of the Sun Olin testimony which Mr. Logan has already given goes, your Honor, to the question of the extent to which parties are in fact limited to their original product in a joint venture and as the venture itself develops.

The Court: Now, that was gone into without objection.

Mr. Freed: Correct.

The Court: We are on a different topic now, which is objected to.

Mr. Freed: I believe that the balance of the joint venture testimony which I would direct to Mr. Logan would be more pertinent to the testimony of Mr. Osborne, but it was only the combination of Mr. Osborne's testimony and Mr. Logan's with respect to a product which in fact Olin was making in Kentucky that was also the subject of a [fol. 432] joint venture that led us back into the joint venture policy as a whole.

It is not strictly pertinent solely to Mr. Logan's testimony.

The Court: If it is not pertinent to Mr. Logan's testimony I do not think we ought to cross-examine him on it. I will sustain the objection.

You are free, of course, you understand, Mr. Freed, to

call these witnesses as your own witnesses and examine them as though on cross-examination as part of your rebuttal, if that is what you want to do.

I assume Mr. Logan falls within the category of these persons that you are permitted to do that with. I am not really passing on that, but I suggest it as a possibility.

By Mr. Freed:

Q. Mr. Logan, do you recall when the certificate of incorporation of Penn-Olin Chemical Company was filed?

The Court: You mean the date, or does he remember the circumstances

Mr. Freed: The date.

The Witness: It was in February of 1960. I do not recall the exact date or the circumstances.

By Mr. Freed:

Q. To your knowledge has there been any modification [fol. 433] or withdrawing and substitution of a new certificate of incorporation?

A. Not to my knowledge.

Q. Are you familiar with the authorization given to Penn-Olin Chemical Company in its certificate of incorporation with respect to the production and sale of chemicals other than sodium chlorate?

A. I am not familiar except by hearsay.

Q. Mr. Logan, I would like to read to you from paragraph third of the certificate of incorporation of the Penn-Olin Chemical Company, which is dated February 24, 1960, and has been previously been introduced into evidence as Plaintiff's Exhibit 176.

"The nature of the business of the corporation——"

This is the Penn-Olin Chemical Company.

"—and the object or purposes to be transacted, promoted, or carried on by it are as follows: (1) To produce, manufacture, process, refine, treat, extract, store, purchase, or otherwise acquire and to sell, use, deal in, transport, distribute, market, handle, and otherwise turn to account or dispose of either in their

natural form or any altered, converted, or manufac-
[fol. 434] tured form chemicals and chemical compositions of any state, form, nature, mixture or description, including without limiting the generality of the foregoing sodium chlorate, potassium chlorates, and perchlorates, and any and all materials, mixtures, products, byproducts, articles and substances directly or indirectly related thereto in any way or of a like or similar nature, includi. all those which may be ingredients thereof or derivatives therefrom, or which may be useful in the manufacture or production thereof, or which may be advantageously manufactured or produced in connection therewith or in the manufacture, production, or use of which the same may be useful, and all other kinds of products, articles, goods, wares, and merchandise of every name and nature whether consisting in whole or in part of materials and substances similar to or different from the foregoing."

Has Olin entered into any agreement with Pennsalt rescinding, abandoning, or otherwise striking from the [fol. 435] charter this provision which I have just read?

A. No agreements so far as I know.

[fol. 436] Q. Mr. Logan, do I correctly understand your testimony on direct examination to be that in 1957 and the early part of 1958 when Pennsalt and Olin entered into an arrangement respecting sodium chlorate that there were no limitations of any kind on Olin's right to sell that sodium chlorate anyplace in the United States?

A. That is correct.

Q. I call your attention to Plaintiff's Exhibit 104, which was the letter of December 17, 1957, to which you directed yourself on direct examination. In paragraph two of this document a reference is made to the sales price to the southern mills, and the paragraph deals with the price at which sodium chlorate will be sold to the southern mills. Were there any arrangements with respect to the price to be charged to anyone else?

A. I am not aware of any arrangement regarding price other than this price here.

Q. Can you tell us who is included in the class of "southern mills"?

A. This would mean the southern paper mills, those extending across the Gulf Coast and in the southeastern portion or section of the country.

Q. I call your attention, Mr. Logan, to paragraph number four which states:

> [fol. 437] "It was agreed that you will endeavor to place our sodium chlorate to pulp mill consumers in the south on a broad basis instead of to one or two large accounts."

Was there any agreement with respect to the placing of sodium chlorate to any other class of customers apart from pulp mill consumers in the south?

A. Not so far as I know.

Q. I direct your attention, sir, to paragraph number seven of this letter which refers to Pennsalt's one account in the south, the Buckeye cellulose mill at Foley, Florida. Was that a limitation on Olin's right to sell sodium chlorate in the south?

A. I construe this to be not a limitation but merely a statement that Pennsalt would be selling direct to this account.

Q. Did Olin sell to this account after this agreement was entered into?

A. I don't believe we have sold chlorate to Buckeye yet. We might have attempted to. I am not positive.

Q. I call your attention, Mr. Logan, to the paragraph which reads:

> "Your Mr. J. L. Pickens inquired regarding the possibility of selling sodium chlorate to the uranium [fol. 438] industry in the Inter-Mountain Area, and I confirm that our conversation was related to the sale of sodium chlorate in bulk loaded into tank cars and for sale to pulp and paper mills in the southeast."

Can you tell us whether Olin in fact, following this letter, in the years 1958 or 1959 sold sodium chlorate to the uranium industry in the Inter-Mountain Area?

A. I have no knowledge of any sales to anyone in the uranium industry. Possibly we did, but I am not aware of it.

Q. Mr. Logan, did you consider this letter, Plaintiff's Exhibit 104, and in particular paragraph two to which I just directed your attention, to limit or restrict Olin in any way in its right to resell sodium chlorate secured from Pennsalt to anyone?

A. No, I do not consider it a restriction. This was a statement of the objective which was to develop the southern paper industry as an outlet for chlorate.

Q. Mr. Logan, I would like to call your attention to Plaintiff's Exhibit 109.

The Court: Do you want this before him? I suppose you are going to examine him about it.

The Witness: Thank you, sir.

By Mr. Freed:

[fol. 439] Q. Plaintiff's Exhibit 109 is a letter from you, Mr. Logan, to Mr. F. C. Shanaman dated January 14, 1958, which reads in part as follows:

> "Since undertaking our work on chlorate sales our people have raised the question of chlorate usage by the railroads as a right-of-way weed killing agent. We do have some opportunity to move chlorate for weed-killing applications, but are not sure this was included in the intent of our arrangement with you."

Do you recall writing this letter?

A. Yes.

Q. Can you tell us whether Olin in fact after this letter in the years 1958 or 1959 sold sodium chlorate to railroads as a right-of-way weed killing agent?

A. I don't believe we have yet sold chlorate for weed killing purposes. We have had some discussions with people in this business about chlorate.

Q. Do you recall receiving a response to the letter which has been identified as Plaintiff's Exhibit 109?

A. I think there was a response from Mr. Shanaman.

Q. Plaintiff's Exhibit 110, a letter dated January 16,

1958, addressed to Mr. J. O. Logan, and signed Fred Shanaman, and reads as follows:

> [fol. 440] "I am hurriedly acknowledging your letter of January 14 concerning sodium chlorate. We have a contract with Chipman Chemical Company which covers our sales of sodium chlorate for railroad weed killing purposes; under the circumstances same had been excluded from earlier discussions and I will elaborate thereupon when I see you later this month."

Do you recall receiving that letter?

A. Yes.

Q. Do you recall, Mr. Logan, whether Olin salesmen were given any instructions with respect to the manner or place or customers to whom sodium chlorate received from Pennsalt would be marketed?

A. The only instructions they received, to the best of my knowledge, is that they were watched or they were directed to contact the paper mills and their efforts in this connection were very carefully watched to make certain that this coverage was effective and complete.

Q. To your knowledge, Mr. Logan, did Olin make any sales in the years 1958 or 1959 to anyone other than a pulp and paper company?

A. I don't know of any such sales. I am excluding from that answer the small quantity that our agricultural people might have sold in the southwest in formulated form. [fol. 441] I do not know where that went.

Q. Is Olin engaged in the marketing of sodium chlorate for agricultural purposes in the south?

A. No. I think it was brought out earlier that our agricultural division operates out of Phoenix and had obtained small quantities of packaged sodium chlorate. I do not know where that went.

Q. How long has Olin been in that business?

A. What business? The agricultural business?

Q. The agricultural sales of sodium chlorate.

A. I can't answer how long we have sold sodium chlorate in—It is a very minor segment of the business. The company has been in the agricultural business for some years.

Q. Is that the herbicide business?

A. I assume this is what it was used for. I do not know.

Q. You have no recollection of whether there were any such sales?

A. I have no knowledge of that at all.

Q. There were, to your knowledge, no weed killing sales of sodium chlorate in this period?

A. That is correct.

Q. And no uranium milling sales?

[fol. 442] A. That is correct.

Q. No sales outside the pulp and paper industry?

A. As far as I know that is correct.

Q. No sales outside of the south?

A. I think I will need a definition of the south. I don't know exactly where all of these sales went.

Q. I would like to read to you, sir, from Table Number 4 refered to in Stipulation Number 4 in Plaintiff's Exhibit 414, which is the compilation that has previously been referred to as General Stipulation, Set 1. Item 4 of this exhibit reads as follows:

> "Shipments of sodium chlorate by Pennsalt in years prior to 1958 and in the years 1958-60 on behalf of Olin are as set forth in attached stipulation Table 4."

Table 4 shows that in the year 1958 Olin sales of sodium chlorate went to the following states: Alabama, Arkansas, Georgia, Virginia.

Are all of those states in the south?

A. I would so classify them, yes.

Q. In the year 1959 Olin's sales went to the following states: Alabama, Georgia, North Carolina, and something called agricultural sales.

Do you know whether that agricultural chemical sales is purchased by your Phoenix plant?

[fol. 443] A. I assume that is what it refers to, yes.

Q. To your knowledge there were no sales outside of the south other than to and through Olin—other than to Olin's plant for consumption at Phoenix?

A. I believe this is essentially correct, yes.

Mr. Freed: Your Honor, I wonder at this time if we might recess for the day, and my request is based on two reasons. The first is that under the order of the Court at the conclusion of the plaintiff's case a week ago yesterday, the Court required the defendants to designate by this past Monday the documents that they would introduce into evidence. The defendants have so designated their documents but have not as of the moment placed them into evidence in the manner which the plaintiff did prior to its own case, and I believe that before the witness of the importance of Mr. Logan departs that we should have an opportunity to examine those documents that defendants actually places into evidence so that we will know whether any of them represent or relate to his direct examination and be able to deal with them here rather than on the rebuttal case.

Mr. Connelly: I am frankly puzzled by Mr. Freed's statement.

The Court: This is an application to recess until tomorrow morning. It is now 4:25.

[fol. 444] Mr. Connelly: I have no objection to the application for a recess.

The Court: You want something overnight from the defendants, is that it, Mr. Freed?

Mr. Freed: I believe that the procedure which was followed with reference to the plaintiff's case——

The Court: What is it you want overnight, a designation by defendants of the documents they are later going to offer in evidence?

Mr. Freed: That is correct, and perhaps at a session in the morning——

The Court: You haven't had that yet?

Mr. Freed: We have not had that yet. The documents have been listed to us in a letter, but there has been no offering into evidence.

The Court: Let the record record Mr. Connelly's perplexion.

Mr. Connelly: Consternation and perplexion.

Mr. De Lone: Mine, too, please, sir.

The Court: You are always such a jovial man back there, you never seem perplexed.

Mr. Connelly: Your Honor, you will recall in connection with the discussion last week the request made that there be a designation, an advance notice to counsel for the [fol. 445] — of whatever documents the defendants had any intention of offering into evidence in their case. That designation has in fact been given to counsel for the plaintiff. He has it. He has copies of any documents that were not previously furnished to him.

So far as our use of documents is concerned we do not intend to offer in evidence any documents—do not as of now intend to offer in evidence any document which he has not been apprised of. Whether those will be offered in evidence will depend upon what happens in the course of this case.

The Court: I should think would it not be the fact that Mr. Freed would be permitted to cross examine this witness on any documents which you have designated or any documents which you have not designated so long as it is proper cross examination?

Mr. Connelly: Of course.

Mr. Freed: Our difficulty, Your Honor, is that it was our understanding that the documents which would constitute part of the defendants' case would, as in the same manner as was required of plaintiff, be offered into evidence at the beginning of the defendants' case.

The Court: Was there anything in the record that substantiates that?

[fol. 446] Mr. Freed: I don't believe this matter was discussed at any length, Your Honor. This was an assumption that was based on the procedure that had been applicable to the government. I don't beleive there has been an order.

The Court: I have seen cases tried where parties introduce documents in advance, and I have seen them where they introduce them at the end of the case, and I have seen it where they introduce them during the examination of witnesses.

I think that if you know the outermost limits of the documentary evidence which the defendants propose to offer that you have enough information at your disposal

for cross examination on the basis of those documents or any other documents which are proper.

So we will recess until 10:00 tomorrow morning.

Mr. Freed: Your Honor asked of government counsel this morning to bring up again this evening the question of the time which we should schedule our rebuttal witnesses. We have been advised the Court has been advised this morning that Pennsalt's two witnesses would not be available until next Monday, and Mr. De Lone advised me earlier today that the only other witness who will be called will not be available until tomorrow afternoon and——

The Court: You have some more cross examination?

Mr. Freed: We have more cross examination of Mr. [fol. 447] Logan, that is correct. Then I assume we will proceed with Mr. Bingham of the Pittsburgh Plate Glass, then I assume we will have to recess until next week for the Pennsalt witnesses, and the question is when——

The Court: Won't you counsel get together after I leave the bench and see whether you can agree when your rebuttal witnesses should be here, and unless there is something highly unreasonable about it I will try and accommodate my time for your mutual convenience.

(At this time the trial was adjourned until Thursday, November 16, 1961, at 10:00 a.m.)

[fol. 448] Thursday November 16, 1961, 10:00 o'clock a. m.

PRESENT:

As before noted.

Mr. Freed: Before we commence today I would like to make a statement about the question of relief in this case.

Prior to trial the attorneys for all parties agreed among themselves that there was no purpose to be served by putting on evidence with respect to possible relief in this case, that that should be a matter which we would recommend to the court, and should be deferred until such time after trial as it might be appropriate.

We agreed, however, this was a matter which was subject to a ruling of the court with respect to procedure, and

it was through my own oversight that this was not brought to your attention before.

The Court: I suppose, then, it is the understanding of all parties, subject to my approval, that my initial decision after having heard the evidence and read the briefs, and so on, will be either to the effect that the plaintiff is entitled to some relief, the precise nature of which will be later de-
[fol. 449] termined on subsequent evidence, such subsequent evidence as the parties wish to introduce, or the plaintiff is entitled to no relief and the action should be dismissed.

Mr. Freed: That is our understanding.

The Court: Is that the understanding of the defendants?

Mr. De Lone: Yes.

Mr. Connelly: Yes.

The Court: Mr. Phillips?

Mr. Phillips: That is correct.

The Court: That is satisfactory to the court.

JOHN O. LOGAN (resumed)

Cross-examination (Continued)

By Mr. Freed:

Q. Mr. Logan, I believe you testified yesterday that Olin and its predecessor Mathieson Chemical Corporation had been interested for many years in the possibility of producing sodium chlorate. Is that correct?

A. This is generally correct, yes.

Q. Do you recall the market research report which Olin had made in 1956 with reference to sodium chlorate?

A. I do not recall that one specifically. There were sev-
[fol. 450] eral over the years, and this particular one I do not recognize individually.

Q. The plaintiff has previously introduced in evidence as Plaintiff's Exhibit 10 a document entitled, "Market Research Report, Sodium Chlorate, December, 1956," the author's name appears on the front page as John J. Hayes.

I show you a copy of this report, Mr. Logan, and ask you

if you can now recall the circumstances under which this particular report was prepared?

A. Mr. Freed, to the best of my recollection this report, as were others of a somewhat similar nature, was prepared as a part of our general market research activity, and in some cases these reports were initiated by the market research people, amongst whom Mr. Hayes was one, and in some cases they were initiated by a specific request on the part of some member of management. I do not recall in which category this particular report rests.

Q. What was Mr. Hayes' position with Olin at the time of this report?

A. Mr. Hayes was a member of the market research organization. I do not know that he had a specific title. He was a market research man for us.

Q. Your testimony is you do not recall specifically which individual in the corporation asked him to prepare this [fol. 451] report?

A. That is correct.

Q. Do you recall, Mr. Logan, whether there was a prior market research report on sodium chlorate prepared by Mr. Hayes, a number of years earlier?

A. I don't recall any such report. There were other reports. I don't recall any that Mr. Hayes himself prepared. He might have.

Q. Can you tell us what market research reports prior to this particular one you can recall?

A. There were reports going back into the period of the mid 1930's, made by different individuals at that time. Some of these were formal reports following the pattern of this particular one. Some of them were in the nature of a memorandum that covered the subject in less detailed fashion. I don't recall that Mr. Hayes himself made any prior reports, but I know that there were reports over a period of some years prepared by various individuals.

By the Court:

Q. Are you speaking of reports generally or are you speaking about reports with reference to sodium chlorate?

A. Reports with respect to the market on sodium chlorate.

By Mr. Freed:

[fol. 452] Q. Then Mr. Hayes' 1956 report, which is Plaintiff's Exhibit 10, is simply the most recent, up-to-date report as of that date on Olin's study of the sodium chlorate market, is that correct?

A. It probably is the most recent complete report. There were other briefer and more quickly prepared reports during the period we were making sales of chlorate and up until more recent times.

Q. Then this particular exhibit is simply evidence of Olin's continuing interest through the period of the '50's in the market for sodium chlorate?

A. I would think so, yes, sir.

By the Court:

Q. My memory is a little bit bad. You said you had reports made during the period when you sold sodium chlorate. I had the impression that you hadn't sold any sodium chlorate before 1956.

A. That's correct, the period of sales was after 1956.

Q. So to that extent your earlier testimony in which sales might be inferred prior to 1956 was inaccurate?

A. That's right. There was a continuing pattern of reports both prior to the sales period and during the sales period.

By Mr. Freed:

[fol. 453] Q. Mr. Logan, do you recall yesterday making the statement, with reference to a question from Mr. Connelly dealing with the April, 1959 Whither Report, that the corporate staff didn't feel that this particular project, namely, the sodium chlorate plant at McIntosh, showed any merit worthy of serious consideration by the corporation at that time?

A. Yes, sir.

Q. By that statement you did not mean to convey, did you, any different conclusion by the corporate staff other than that which was stated in Plaintiff's Exhibit 34? I refer you in connection with your answer to the second page under the letter F of this exhibit. That is the conclusion of the corporate staff to which you were referring, is that correct?

A. That is correct. This is a specific statement of position which they discussed with us, but I am talking about the same general conclusion, yes.

Q. And the conclusion that is stated in Plaintiff's Exhibit 34 with respect to the reaction of corporate staff is correct in this exhibit?

A. I would say this is correct.

Q. Then the fact is, sir, that following submission of the April, 1959, Whither Report, and its consideration by [fol. 454] the corporate staff, your division undertook further studies along the lines outlined in Plaintiff's Exhibit 34, in further consideration of a sodium chlorate project, is that correct?

A. That is correct.

Q. Can you tell us, Mr. Logan, whether the consideration which was given in April, 1959, to an Olin sodium chlorate plant at McIntosh was consideration which was aimed exclusively at an independent competitive facility for Olin by itself?

A. This was not exclusively aimed in this direction although we considered that if we put any plant at McIntosh, or if a plant were put in at McIntosh, it was possible that it would be an independent venture. There was some consideration of this location along with several other of our plant sites, but there was no conclusion at this stage as to whether this would have been an independent venture or handled in some other fashion.

By the Court:

Q. Was that area of the subject given any consideration at all?

A. The area of it being an independent venture?

Q. Yes, as distinguished from a joint venture.

A. Yes, this was an alternate that was definitely in [fol. 455] our consideration.

Q. But there was no conclusion arrived at?

A. There was no conclusion arrived at.

By Mr. Freed:

Q. Prior to considering McIntosh, had Olin considered a number of other locations for a sodium chlorate plant?

A. We had, and I don't know whether it was prior or

concurrent with the consideration of McIntosh, but we had considered the possibility of Brunswick, Georgia and also at Lake Charles. We had actually also thought of the possibility of Saltville, Virginia, but several of these were disposed of rather quickly.

Q. The possibility of a plant at Brunswick, Georgia, was rejected on grounds of economics?

A. Primarily, yes. Secondarily because it was not too well located with respect to the market. It was on the coast and hence geographically the coast eliminated a great portion of your market.

Q. Then both the location of Brunswick and the power cost were the factors instrumental in causing its rejection?

A. That's correct, plus the fact that we had no substantial operation at Brunswick to which this could be tied. It was only a very limited operation at that location.

Q. Do you recall the time that Brunswick was rejected [fol. 456] as a possible location communicating that fact to Mr. Drake the President of Pennsalt?

A. I communicated to Mr. Drake the fact that we had checked into the power and certain situations at Brunswick and that this did not appear attractive.

Q. Do you recall advising Mr. Drake of your consideration of McIntosh as the site of either a joint plant or an independent sodium chlorate plant?

A. I believe I stated to Mr. Drake that at the time we considered the power cost at Brunswick we were also looking at other locations, but I do not recall that I specifically mentioned Brunswick or McIntosh to him.

Q. I would like to show you, Mr. Logan, Plaintiff's Exhibit 160, which is a letter dated February 27, 1959, from you to Mr. Drake, and ask you whether that is the letter which you were referring to in your testimony regarding the advice or your advice on Olin's findings with reference to Brunswick, Georgia, at the site of a sodium chlorate plant?

A. Yes.

Q. And to refresh your recollection with reference to the McIntosh site I would like to show you Plaintiff's Exhibit 163. This exhibit is a letter dated April 7, 1959, from you to Mr. Drake and reads as follows:

"Dear Bill, thank you for your note of April 3. [fol. 457] We have reviewed power and salt cost factors at other locations and have come to the conclusion that McIntosh or Lake Charles would be better than the East Coast point due to lower power and the availability of our own salt. The results for McIntosh location are reasonably encouraging. I would hope to have some ideas to discuss with you in another 30 days."

Does that refresh your recollection about advising Mr. Drake?

A. Yes. I apparently specifically referred to McIntosh to him.

Q. You recall, Mr. Logan, do you not, that the Whither Report of April of 1959 was dated April 10, 1959, and therefore your advice to Mr. Drake respecting McIntosh was given approximately contemporaneous with the consideration by Olin of locating a sodium chlorate plant at McIntosh either independently as a competitor or as a possible joint venture. Is that correct?

A. Correct.

The Court: That question simply asks for the witness to restate what the documents show on their face concerning dates, the letter being April 7 date, and the other report being an April 10th date.

[fol. 458] You did not have any other implications to be drawn from that question beyond that?

Mr. Freed: I do not believe there was anything new in the question, your Honor.

Will the reporter read the question?

(The reporter read the last question as follows:)

"Q. You recall, Mr. Logan, do you not, that the Whither Report of April of 1959 was dated April 10, 1959, and therefore your advice to Mr. Drake respecting McIntosh was given approximately contemporaneous with the consideration by Olin of locating a sodium chlorate plant at McIntosh either independently as a competitor or as a possible joint venture. Is that correct?"

Mr. Freed: I want to be sure there wasn't an element in the question——

The Court: I thought you were merely saying, "You wrote the letter of April 7, 1959, to Mr. Drake about the same time that the Whither Report came out," and that is what you meant to have the witness say, "Yes, they were written about the same time."

Mr. Freed: That is correct. The significance of the timing of the letters is brought out by the question in that, as I understand Mr. Logan's testimony, this location was being considered by Olin either as the site of an indepen-
[fol 459] dent competitive facility or as a possible joint venture.

Mr. Connelly: I do not understand what counsel means by "an independent competitor." An independent facility is what I understood your question——

Mr. Freed: Independent by Olin alone.

Mr. Connelly: Yes.

By Mr. Freed:

Q. Do you recall, Mr. Logan, having any further discussions with Mr. Drake following the April 1959 Whither Report on the subject of a possible joint venture?

A. I do not recall any discussions at that time of any consequence certainly. Obviously the discussion came up later regarding the joint venture.

Q. Mr. Logan, Plaintiff's Exhibit 168 is the extract from minutes of a division management meeting held by Olin's Chemical Division on June 8, 1959. It reads as follows under the heading of, "Chlorate Facilities."

> "Subject facility will be discussed this week. It may be either on a joint venture or independent basis. The feeling exists that there is a market to justify such a facility. Mr. Logan will discuss our interest in the joint venture (Pennsalt) this week."

[fol. 460]. Does that minute refresh your recollection with respect to conversations in the middle of 1959?

A. It does not refresh my memory sufficiently to say that I discussed this with Pennsalt or with my own management. I do not know which this means with reference to further discussion.

Q. In all events your continuing to advise Mr. Drake of Olin's plans or its consideration of a sodium chlorate facility was pursuant to the understanding and agreement that you reached with Pennsalt back in February, 1958. Is that correct?

A. That is correct.

Q. Mr. Logan, yesterday in response to direct examination you identified Dr. Wojcik as having previously been Director of Research for the Chemicals Division, but after that time becoming Scientific Advisor to Mr. Block.

Just to clarify the record can you recall when Dr. Wojcik changed positions from Director of Research and Development, Industrial Chemicals, to another position in the Chemical Division?

A. Dr. Wojcik had been the Director of Research and Development for the Industrial Chemicals segment of what was later the total Chemical Division. When the other activities were brought together under Mr. Block's man-
[fol. 461] agership into the Chemicals Division there were several research activities and at this time or at this stage there was really no Director of Research and Development because Dr. Wojcik had only been responsible for a segment of the organization's research activities.

Mr. Block in essence assumed the position of Director of Research for the division, and Dr. Wojcik became more or less automatically an advisor to him on certain research and scientific areas, but I do not believe there was any formal transition of title from Director of Research to some other position.

Q. The time period to which you are referring is what?

A. This did not happen abruptly, it took place over the period of 1958, 1959, and into 1960.

Q. I direct your attention, Mr. Logan, simply to clarify the record on Dr. Wojcik, to Plaintiff's Exhibit 374, which is an organizational chart dated September 22, 1959 and which lists Dr. Wojcik as of that date, the date of his release, as Director of Research and Development for Industrial Chemicals. Is this organizational chart correct?

A. I think this is correct as an organizational chart. As a matter of practice, Mr. Block's procedure was not to follow strictly organizational charts, and as a matter of practice, therefore, this was not necessarily what was tak-

[fol. 462] ing place in the organization. But organizationally this was a correct chart, yes.

Q. In other words, in his capacity or formal title of Director of Research and Development, Dr. Wojcik was also answerable directly to Mr. Block and was serving as Mr. Block's scientific adviser for a wider range of activities of the Chemicals Division, is that your testimony?

A. And simultaneously Mr. Block was also proceeding with some active direction of the Industrial Chemical Research activity.

The Court: Mr. Block or Dr. Wojcik?

The Witness: Block was. What I am saying is that this is an organizational chart issued by the personnel people, but in practice this was not strictly adhered to in both directions. Dr. Wojcik's activity at Mr. Block's will extended beyond the Industrial Chemicals area, and Mr. Block at his will undertook activity in the area which the chart shows was the responsibility of Dr. Wojcik.

By Mr. Freed:

Q. Mr. Logan, you were asked on direct examination yesterday whether in the course of the negotiations prior to the February 11, 1960, joint venture agreement, the following question. This is at page 393 of the transcript:

"Question: Was there anything said on the sub-
[fol. 463] ject of the plant location, or proposed plant location?

"Answer: I think the Pennsalt people proposed Calvert City."

Was there anything else said about possible locations during the course of the Penn-Olin negotiations?

A. Yes, I think that alternate locations were discussed.

Q. Will you tell the court what those alternate locations were?

A. These alternate locations are the same ones that we had been investigating over a period of some time, and I think that at this stage the alternate locations had been pretty well eliminated by our own analysis, but obviously when Pennsalt would suggest Calvert City we would con-

sider with them and discuss whether or not this was the best location amongst all those that were available.

I don't think there was any extensive discussion on alternate locations because they had been pretty well eliminated by the prior studies.

Q. You do not recall then that there was a specific alternative to Calvert City considered just prior to the joint venture agreement of February 11, 1960?

A. Considered by us jointly with Pennsalt, or considered [fol. 464] by us independently?

Q. Considered in the course of the Penn-Olin negotiations by both companies.

A. We had considered several locations, Mr. Freed, as evidenced here.

Q. My question is whether there was a specific location, either in terms of city or geographic area, that was considered.

The Court: You mean talked about between representatives of Pennsalt and representatives of Olin?

Mr. Freed: That's correct, your Honor.

Mr. Connelly: This is addressed to a few days prior to February 11th?

The Court: It is in the period of negotiations. Whether it is a day or two or a little more remote than that, the question covered whatever period the negotiations covered.

Mr. Connelly: The only thing, your Honor, there has been testimony by the witness of negotiations extending over a rather considerable period of time. The question that was asked on direct examination, to which Mr. Freed referred a moment ago, related specifically to the meeting shortly prior to January 22, 1960. I am simply inquiring as to whether the present question is limited to that meeting or whether he wants to review again all of the [fol. 465] considerations of plant locations at earlier dates.

By Mr. Freed:

Q. My question, Mr. Logan, is limited to the year 1960, and particularly the months of January and February, in which according to your testimony yesterday representatives of the two companies met and negotiated and finalized the joint venture agreement.

The Court: Finalized the letter of intent.

Mr. Freed: The letter of intent, yes, sir.

The Witness: Mr. Freed, I think, and this is my recollection, that when we got to the point of discussing a specific venture, the point of Calvert City was brought up, and to us this was a logical location because it answered some of the questions that we had been unable to resolve in any of the locations available to us, and we probably discussed alternates.

The Court: I think you ought not to speculate as to whether or not you did. If you recall that you did, say so.

The Witness: I have no recollection of us specifically discussing alternate locations at that time, most of these having already been discussed with Pennsalt and having been eliminated for one reason or another.

By Mr. Freed:

[fol. 966] Q. Mr. Logan, do you recall testifying on deposition in this case, on June 1, 1961, here in Wilmington?

A. Yes, I was here.

Q. I would like to read to you from the transcript of that deposition and ask you whether the testimony which you gave in June refreshes your recollection with respect to alternative locations considered prior to February 11, 1960. This is from page 191 of Plaintiff's Exhibit 408, the deposition of John O. Logan:

"Question: At the time the Penn-Olin venture was discussed in late 1959 and early 1960, was Olin contemplating the construction of new facilities at Chattanooga?

"Answer: I don't think it was contemplating then. It was giving some mental consideration to the possibilities.

"Question: And did anything come of those discussions or possibilities?

"Answer: We ultimately decided to locate a facility at Charleston, Tennessee.

"Question: Is Charleston located close to Chattanooga?

"Answer: It is approximately 50 miles from Chattanooga.

[fol. 467] "Question: And what facilities did you decide to locate at Charleston?

"Answer: We are in the process of building a chlorine caustic soda plant there.

"Question: Did you at any time during the Penn-Olin negotiations consider building a sodium chlorate plant at Charleston, Tennessee?

"Answer: When we originally conceived the idea of having a plant at Chattanooga or at Charleston, I believe some studies of the freight structure were made from that location to the chlorate consumers versus from Calvert City to the chlorate consumers."

Does that excerpt from your deposition refresh your recollection as to the specific other location or locations that were considered in the course of the Penn-Olin negotiations?

Mr. Connelly: If the court please, I object to that question. That is not the question that was put to him before, which was discussion of that subject of plant locations at a meeting with Pennsalt shortly prior to January 22, 1960.

The Court: I think it was a little broader than that. It included January and February, 1960.

[fol. 468] Mr. Connelly: I'm sorry, I didn't mean to limit it to just prior to January 22. The point is discussions with Pennsalt as opposed to the consideration by Olin, which is referred to in the testimony just read.

The Court: The question is whether or not the testimony refreshes the witness' recollection as to whether or not he had discussions of alternatives during the period of January and February, 1960, with Pennsalt.

Mr. Connelly: I withdraw the objection.

The Witness: Mr. Freed, it is my recollection that prior to the time of the discussions which led to the letter of intent, namely, the discussions in late January and early February, that there was no reference by us to Chattanooga. Following the letter of intent and the discussion of the joint venture, we did make studies of Chattanooga as a possible location in comparison to Calvert City, which had been suggested by Pennsalt, and Pennsalt was informed of some of these results and was aware of them.

By Mr. Freed:

Q. Do you recall, Mr. Logan, attending a Penn-Olin negotiation session prior to the letter of intent of February 11, 1960, on February 4, 1960 in Philadelphia? Do you recall that such a meeting took place?

The Court: A Penn-Olin session?

[fol. 469] Mr. Freed: A negotiation session between Pennsalt and Penn-Olin with respect to the possible creation of Penn-Olin.

Mr. Connelly: I take it counsel means between Pennsalt and Olin?

Mr. Freed: That's correct, sir.

The Witness: There was a session in Philadelphia. My recollection as to the exact date is poor. It might have been on February 4th, it might have been later, I am not sure, Mr. Freed.

By Mr. Freed:

Q. I would like to show you, Mr. Logan, Plaintiff's Exhibit 194, which are handwritten notes dated 2-4-60, and bear in the Olin stamp box the name "Logan." I address your attention particularly to the second page of those handwritten notes and ask you whether they are your own notes taken at a meeting on February 4, 1960, and refresh your recollection of any discussions between Pennsalt and Olin with regard to an alternative location for that facility?

A. Yes, I am well aware of that, and these are my notes. I do not recollect the exact date of the meeting.

The Court: The notes bear notation on the first page, 2-4-60?

The Witness: That is correct.

[fol. 470] The Court: That is the date when the notes were made?

The Witness: That is correct.

By Mr. Freed:

Q. And those notes were made at a meeting of Pennsalt and Olin personnel, is that correct?

A. They were either made at the meeting or they were made by me immediately subsequent to the meeting.

Q. Were the locations of Calvert City and Chattanooga discussed in the course of that meeting as alternative locations?

A. Yes. I think this is the meeting at which we decided to check out the freight rates and the distribution pattern from both points to determine the economics in terms of transportation problems.

Q. Can you tell us, Mr. Logan, when it was that Chattanooga was rejected as a possible site for a sodium chlorate plant?

A. I think it wasn't quite a case of rejecting Chattanooga. It was a case that there was no specific location at that time which we could use, or which could be used to put a chlorate plant on. The use of Chattanooga was designed to cover an area, as opposed to being specifically Chattanooga or ten miles upstream or downstream.

[fol. 471] As I recall, there was not at this time any specific location in the Chattanooga area where we could have put a facility. So this was not so much a case of rejecting it as a case of trying to evaluate whether we should pursue the matter of developing a site in Chattanooga and what to do about it.

Calvert City was a going location, and as shown on page 2 of these notes, it was agreed by the parties in conference that it would take slightly longer to install the facility at Chattanooga, if we had a specific site on which to do it than it would to do it at Calvert City. This was because Calvert City was a fully developed facility, had a labor force, and had technicians available to put the plant in.

It is a case of checking out the last possibility that there was a location that would prove out to be better than Calvert City, rather than an outright rejection of Chattanooga location.

Q. When you refer to Chattanooga you are referring to that as a sample location in the Tennessee Valley Authority area. Is that correct?

A. That is correct.

Q. And Charleston, Tennessee, is in that area?

A. Charleston, Tennessee, is in that area, and Charleston [fol. 472] later became the specific location that we would have used instead of Chattanooga. If Charleston had been in existence at the time of this meeting the notes would

have referred to a comparison between Calvert City and Charleston and we would have handled freight rates from Charleston. Not having Charleston at that stage Chattanooga was used as a general area point.

Q. Following the Penn-Olin letter of intent did Olin in fact locate an electrolytic facility at Charleston, Tennessee?

A. Yes. Subsequent thereto we did and we are building a facility there at this time.

Q. Is there a sodium chlorate plant being constructed there by Olin?

A. There is not.

By the Court:

Q. Was it the type of electrochemical facility to which it would have been practical to have made sodium chlorate production an adjunct?

A. Ultimately it would have been practical, yes.

Q. What is the significance of your qualification "ulti-
[fol. 473] mately?"

A. Only that to the extent that time was a factor in getting into production it was possible to proceed immediately at Calvert City upon any day of decision, and Charleston was not at this stage even a selected site and did not have the electrolytic facility to which the chlorate plant could have been added.

By Mr. Freed:

Q. Mr. Logan, you testified yesterday that the joint venture negotiations of 1960 were triggered by an approach that Mr. Fred Shanaman made to you. Can you isolate for us, to the best of your ability, the date on which Mr. Shanaman contacted you?

A. I am afraid I cannot, Mr. Freed. These contacts sometimes were made over the phone on a rather casual basis depending on where we caught each other, and also at this time Pennsalt being in an organizational transition they were introducing new faces into the picture and Mr. Shanaman was approaching ultimate retirement so that more or less simultaneously I was hearing from Mr. Shanaman and also Mr. Drake, and I am not sure at what time

Mr. Shanaman contacted me and at what time Mr. Drake contacted me. The exact dates I do not recollect.

Q. Do you recall, though, that the dates were in the [fol. 474] months of December, 1959, or January, 1960?

A. Yes, I think they were within this period.

Q. Do you remember what the status of Olin's sodium chlorate production activities or consideration of activities was immediately prior to Mr. Shanaman's calling you or getting in touch with you at the end of 1959?

A. I think the status at that time was that we had added to our technical knowledge in the sense that we were informed as to what others could make available to us in the way of technical information. We had evaluated additional locations. We had kept up to date our study of the market, and I think as of that time we were much better informed on all phases of this subject than we had been previously.

As far as coming to any conclusion, we were no further advanced than we were when we made the recommendation about McIntosh that was turned down.

Q. Was the question of an independent venture or joint venture still an open question?

A. It was still an open question. I think we were aiming, certainly I was aiming in my own effort in this connection, at developing a facility that was most sound from both a technical and an economic standpoint, and as far as I was concerned this was the major objective.

Q. Your activities in this respect were aimed at both al- [fol. 475] ternatives, or at one more than the other?

A. Aimed at selecting one of the alternatives which would prove to be best from those standpoints, technical and economic and marketing soundness.

Q. And these factors were being considered by you in connection with either a joint venture or an independent venture?

A. They were being considered in this light by me, yes.

Q. I would like to show you, Mr. Logan, a copy of Plaintiff's Exhibit 358, which is a memorandum dated November 18, 1959, from you to Mr. J. G. Johns. Would you tell the court who Mr. Johns was at that time?

A. Mr. Johns was one of our sales managers who was more directly concerned with the sales of chlorate.

Q. Directing your attention to the last paragraph of Exhibit 358, will you tell the court the circumstances which led to your statement that:

> "Since in all probability we will not proceed with a joint production facility we should not overcontract until at least until there is further clarification following my meeting with Shanaman."

Can you tell us what was responsible for this estimation [fol. 476] on your part of probability that Olin would not proceed with a joint production facility?

A. I think this was the result of our continuing examination of this problem, and as we acquired additional knowledge and information we obviously weighed more seriously the alternates. I think at this time there was some consideration on our part, and some of our people probably felt that we——

By the Court:

Q. You are supposing?

A. I will correct the statement "suppose." I will make this as a statement.

At this time there were some people in our organization who were still pressing that matter of us proceeding independently, feeling that our knowledge and our ability was growing all the time. My feeling was that while we were approaching this point and that therefore we wanted to be careful in our contractual position for the future, we had not yet reached the stage where we could draw that conclusion that we should proceed independently.

By Mr. Freed:

Q. At this particular time the alternative of proceeding with an independent facility rather than a joint facility was only a probability, but was not a firm conclusion?

[fol. 477] A. I think that is correct, Mr. Freed.

By the Court:

Q. It looked to you like a more likely ultimate course of procedure than the joint venture route?

A. It looked as though it was definitely more of a possibility than it had been previously, certainly.

By Mr. Freed:

Q. But more than that it was a more likely possibility than the joint venture at the time of this memorandum. Is that correct?

A. I would draw that conclusion from this statement here. I do not recall the specific facts that prompted this memo.

By the Court:

Q. I should suppose from the statement, and you correct me if I am misjudging your decisional mood, so to speak, that if in all probability you were not going to proceed with the joint production facility you were at the point where you would not proceed with any production facility, or you would proceed with an independent facility?

A. That is correct. I do not recollect at the moment what is behind the use of the term "probability" here. It could have been simply that——

[fol. 478] Q. Do not speculate. You said you do not know —Well, you may explain it if you wish, unless Mr. Freed has some objection.

He says he doesn't know what was behind it, but he was going to suggest an alternative possibility. Do you want that sort of explanation or not, Mr. Freed?

Mr. Freed: If your Honor feels it would be helpful we will be happy to have the witness, who was the man in charge at this time——

The Court: On the face of it it seems to reflect the judgment of the unlikelihood of a joint venture.

The Witness: This might have simply meant also that our own management people, and understand that our corporate people as represented by Mr. Osborne and the staff

still were not sold on this particular product as something that we should get involved in.

My statement here regarding probability may have been based on the fact that we probably were not going to do anything on chlorate. I do not recollect the exact circumstances which prompted this particular memo.

By Mr. Freed:

Q. In other words, it is possible though you do not recollect this was the fact that Olin might have considered at this time abandoning sodium chlorate altogether?

[fol. 479] A. That is correct. Yes.

By the Court:

Q. Of course it is a fact that this expression was called for or was brought forth by you, was it not, Mr. Logan, in the light of a decision which you had to make as to your quantitative contractual commitments?

A. That is correct. This might have indicated in our minds that we were going to wash out the whole chlorate program and therefore don't go too far.

By Mr. Freed:

Q. Now that speculation of various possibilities has been placed on the record, the likelihood in terms of Olin's increasing technical knowledge and interest in the field was that at that particular point Olin was more interested in proceeding with an independent facility than it was with proceeding with a joint facility. Is that correct?

Mr. Connelly: I will object to the question insofar as it calls for the conclusion as to the interest of corporate management in Olin. I have no objection to limiting it to the conclusions of this witness.

The Court: Let us have the answer insofar as it is limited to the witness, and you can expand your question if you wish, and I will have to rule on it if it is pressed.

The Witness: Could I have the question again?

[fol. 480] The Court: We will consider the question with the limitation that you are calling for an expression of a view from Mr. Logan alone, his mental decisional position

at the time when the memorandum was written, then you can supplement that question and expand it if you like. Read the question back.

(The reporter read the question as follows:)

"Q. Now that speculation of various possibilities has been placed on the record, the likelihood in terms of Olin's increasing technical knowledge and interest in the field was that at that particular point Olin was more interested in proceeding with an independent facility than it was with proceeding with a joint facility. Is that correct?"

The Court: This is limited to your personal——

The Witness: That is correct. "Olin" herein is defined as the Chemicals Division, and my particular part in that, as distinct from any attitude the corporation might have had at that time, at that time the division was still, as it had been, divided in its opinion regarding these matters. There were certain of our research people who maintained the attitude more or less consistently throughout the years that we should proceed independently. There were others in the division, including myself and Mr. Block, both of us at this stage had more or less decisive power on this situ-
[fol. 481] ation, that our technical people were not yet at the stage where we could handle this project satisfactorily on our own.

So at this time, as throughout this whole period we have had under consideration, there were two opinions within the division. Mr. Block and I had maintained up until this stage that we were not prepared to move independently, and I think this was the divisional view, if there was an official divisional view at that time.

By Mr. Freed:

Q. Therefore you are saying at this particular time there was more of a likelihood that Olin would go joint venture than it would go an independent venture?

A. I am not necessarily saying that, no. I am just saying that we were not prepared to commit ourselves in either direction, and we might even be facing the third alternate of discontinuing the interest in chlorate altogether.

Q. Those certainly are the three alternatives——

A. That is correct.

Q. —That one can consider——

A. That is correct.

Q. —which is a joint venture, or a lone venture, or nothing at all.

Addressing your attention to what was the fact in Novem-
[fol. 482] ber of 1959 at the time you wrote this memorandum, what was the probability that you had in mind when you said, "in all probability we will not proceed with the joint venture"? Were you considering at that particular moment abandoning all interest in sodium chlorate?

A. I do not think we were considering abandoning all interest in chlorate. We were weighing what we could do for the future, and we could see that we were approaching a point where our own capabilities were more satisfactory in terms of a chlorate project than they had ever been. Therefore we were approaching a date of decision.

Q. And the decision that you had in mind at that particular point was of a lone venture, or a joint venture rather than a joint venture or nothing at all?

A. We had no decision in mind at that time. We were approaching a date of decision.

Q. So the three alternatives remained open but the joint venture was not the most likely course according to the exhibit before you. Is that correct?

A. I do not know that I would say it was not the most likely, but it was, certainly in relation to our own capabilities, getting more and more an equality.

Q. Do you recall whether any action was taken by Olin in light of the probability stated in Exhibit 358, action with
[fol. 483] respect to how large or how small the availability of sodium chlorate or resale by Olin in the year 1960 should be, and perhaps to make the record more clear on this point, I should read the second paragraph of Plaintiff's Exhibit 358.

> "Shanaman feels that if we are going to proceed jointly with the production unit he could supply up to 5,000 tons in 1960. However, if we are not going to proceed jointly he would suggest a much smaller quantity, namely, around 2,000 to 2500 tons since their freight equalization cost is heavy."

Do you recall which of those alternatives Olin decided upon around the time of Plaintiff's Exhibit 358, namely, in November of 1960?

A. I am not sure, Mr. Freed, a final conclusion on this point was reached actually until after the first of the year. Maybe it was, but I think the final conclusion was that we would handle about 5,000 tons in 1960.

Q. In order to refresh your recollection on dates I would like to show you a copy of Plaintiff's Exhibit 359, which is the memorandum dated December 10, 1959 from "J.G.J." to "J. G. McMullen."

Who is "J.G.J."?

A. That is Johns.

[fol. 484] Q. Mr. Johns, the sales manager?

A. His name is at the bottom of the memo. Yes.

Q. This memorandum shows a copy to you. Is that correct?

A. That is correct.

Q. The first paragraph of this memorandum reads:

> "Confirming our discussions we will limit our solicitation of third party sodium chlorate sales for Pennsalt to a maximum 2500 tons commitment for the year 1960."

Does that refresh your recollection with respect to the action which you took following the November 18, 1959, expression of probability?

A. I do not recollect that I took any action on this point. This was an action that Mr. Johns took with his sales people as to a specific quantity that would be sold, and this describes how they propose to handle this quantity.

Q. Then Plaintiff's Exhibit 359 only indicates the action which the sales branch of Olin was taking pursuant to your memorandum to Mr. Johns dated November 18, 1959?

A. I think that is all that this memorandum indicates, yes.

Q. It was following this memorandum that you had at the end of or towards the end of December or early January [fol. 485] of 1960, that you had your conversations with Mr. Shanaman and the Pennsalt people?

A. That is correct.

By the Court:

Q. In the normal course of your procedures this decision, which seems to have been one by the sales people, would not have been made without your approval? I see the copy of the memorandum was sent to you.

A. That is right. If I disagreed with this course of action I would have taken some action myself.

By Mr. Freed:

Q. The expression of probability with respect to a joint venture indicated in Plaintiff's Exhibit 358, and the action which Olin took as indicated in Plaintiff's Exhibit 359 were in fact reversed following the subsequent conversations between Olin and Pennsalt. Is that correct?

The Court: Do you mean the tonnage was stepped up for 1960? Is that what you are talking about being reversed, or are you talking about something else being reversed?

Mr. Freed: I am sorry. My question was not clear.

By Mr. Freed:

Q. The probability which was expressed on November 18, and which was acted upon on December 10, namely, the [fol. 486] probability that in all likelihood Olin would not proceed with the joint production facility, that was changed following your conversation at the end of 1959 and the early part of 1960 with Pennsalt?

Mr. Connelly: I will object to that.

The Court: State your grounds.

Mr. Connelly: As argumentative.

The Court: I overrule the objection.

The Witness: Could I have the question again? I want to be sure I got it correct.

(The reporter read the last question as follows:)

"Q. The probability which was expressed on November 18, and which was acted upon on December 10, namely, the probability that in all likelihood Olin would not proceed with the joint production facility, that was changed fol-

lowing your conversation at the end of 1959 and the early part of 1960 with Pennsalt?"

The Witness: Essentially that was changed, yes, when the new facts regarding the proposed plant that Pennsalt brought to us, and the economics were reviewed, the probability was changed and we decided to proceed as we have.

Mr. Freed: Your witness.

The Court: Do you wish a short recess before you commence your redirect examination?

[fol. 487] Mr. Connelly: Yes.

The Court: We will take a ten-minute recess.

(At this point a short recess was taken.)

Redirect examination.

By Mr. Connelly:

Q. Mr. Logan, on your cross-examination you were asked about the market research report on sodium chlorate of December, 1956, prepared by Mr. Hayes. Do you recall that you were asked about that?

A. Yes.

Q. In response to a question asking whether that was the most recent report that you had received, you said that you had also received informal reports as a result of sales of sodium chlorate. When did the sales take place to which you were then referring?

A. The sales began taking place in 1958, 1959 and 1960, and during this period we were constantly receiving reports from our field people as to requirements of various customers, and these were at various times added up into shorter reports, and less complete reports, than the one referred to earlier.

Q. I take it that none of that sales experience had taken place prior to December, 1956?

[fols. 488-489] A. That's correct.

Q. You were also asked on cross-examination concerning your conversations with Mr. Drake in the middle part of 1959, to which you testified. You were asked whether you were continuing to advise Mr. Drake of Olin's plans, or its consideration of a sodium chlorate facility, whether that was pursuant to an understanding or agreement

reached with Pennsalt back in February, 1958. Now, did you communicate to Mr. Drake all of the internal Olin considerations of sodium chlorate?

A. No, I did not communicate everything that was going on in our organization on this subject. There were certain points that we were checking out, specific locations and the power factors referred to, and so forth, and these were specifically discussed with Mr. Drake and others. But we did not transmit to them all of the information that we were collecting and receiving.

Q. Had you ever promised Mr. Drake that you would transmit to him all consideration given by Olin to the problem of sodium chlorate?

A. No, I had never made any such promise.

Mr. Connelly: That's all.

Mr. Freed: No questions.

The Court: You are excused, Mr. Logan.

. . . . . .

[fol. 490] CHRISTOPHER F. BINGHAM, a witness called by the defendants, being first duly sworn, testified as follows:

[fol. 491] Direct examination.

By Mr. De Lone:

Q. Where do you live?

A. In Mount Lebanon, a suburban section of Pittsburgh.

Q. Are you appearing here pursuant to a subpoena served on you by the defendant Pennsalt, and also pursuant to a subpoena served on you by the plaintiff United States Government?

A. Yes.

Mr. Freed: I object, your Honor, to that question insofar as it might imply the witness is on the stand now pursuant to the Government's subponea. He is not.

Mr. De Lone: I am tendering the witness at this time. He has been subpoenaed by both the plaintiff and the defendant. I take it there is no dispute——

The Court: If you are moving to strike the answer I will deny the motion.

By Mr. De Lone:

Q. Mr. Bingham, you are employed by the Pittsburgh Plate Glass Company?

A. Yes.

Q. In what capacity?

[fol. 492] A. I am Vice President, chemical sales, Chemical Division, Pittsburgh Plate Glass Company.

Q. Would you just briefly sketch for us your background, employment-wise; how long you have been with the Pittsburgh Plate Glass, and what have your jobs and responsibilities been?

A. I had previously been employed by Pittsburgh Plate, but since 1949 I have worked with the Chemical Division, as manager of pigment sales; assistant director of sales; director of sales; and Vice President, Chemical Sales. I have been Vice President, Chemical Sales, for five years.

Q. Have you finished?

A. Yes.

Q. Has that always been with Pittsburgh Plate Glas Company, that employment you described, or was it with a predecessor company known as Columbia Southern?

A. I beg your pardon. It was Columbia Southern, a subsidiary of Pittsburgh Plate up until the first of this year when the subsidiary was taken in as a division of Pittsburgh Plate.

Q. In July of 1960 there appeared in the public press an announcement of the plans of Pittsburgh Plate Glass to construct a sodium chlorate facility with a capacity of 15,000 tons at Lake Charles, Louisiana. Can you tell me [fol. 493] whether Pittsburgh Plate Glass has gone forward with the construction of a plant to produce sodium chlorate at Lake Charles, Louisana, as indicated in those announcements?

A. Yes. They are proceeding with this at the present time.

Q. Is the plant under construction at this time?

A. Yes.

The Court: Are there any of those announcements in evidence as to the contents of which you place reliance?

Mr. De Lone: I do not believe there is any announcement in evidence.

The Court: All right. I thought you were trying to incorporate by reference the contents of some such announcement.

Mr. De Lone: I simply wanted to call attention to the events about which I wanted to question him.

Incidentally, if I said July of 1960 I misled the witness. The announcements were in July of 1961. I am not sure which I said.

The Witness: You said 1960, I think. It is 1961.

By Mr. De Lone:

Q. When is it expected that your sodium chlorate plant at Lake Charles, Louisiana, will begin production?

A. Our target is the last quarter of 1962.

[fol. 494] Q. Has Pittsburgh Plate Glass, or its Columbia Southern Division or subsidiary, had any other experience in the production or manufacture of sodium chlorate?

A. Yes, we have a plant operating at Beauharnois, Canada.

Q. Where is that located in Canada?

A. It is south of Montreal, about 15 miles.

Q. In the Province of Quebec?

A. Yes.

Q. Is that operated through a subsidiary company of Pittsburgh Plate Glass?

A. Yes, through Standard Chemical, a subsidiary of Pittsburgh Plate Glass.

Q. Is that a wholly owned subsidiary?

A. Yes.

Q. How long has that plant been in operation in Quebec?

A. Approximately three and a half years.

Q. Do you conduct any other manufacturing operations where you produce sodium chlorate either in the Continental United States or Canada, beyond the two already mentioned?

A. No.

Q. In the Quebec plant do you utilize a cell developed by Pittsburgh Plate Glass or Columbia Southern?

[fol. 495] A. Yes.

Q. The cell is of your own development, is that right?

A. Yes, it is.

Q. The cell is what? It is the component of the plant where the electrochemical reaction takes place that produces sodium chlorate, is that correct?

A. That is correct.

Q. Over what period of time has it been that Pittsburgh Plate Glass or Columbia Southern—I use these terms interchangeably—has developed the cell which it has been employing in its Quebec operation for the last three and a half years?

A. Over what period?

Q. Over what period of time did you develop this cell? When did work start on it, when did you first go into production on this cell?

A. We have been working on cell construction at our Corpus Christi plant since about 1936. Exactly when we started to develop this new type of chlorate cell I am not sure, but I would say it would be many years, ten years.

Q. Does the interest of Pittsburgh Plate Glass—and from here on I am just going to refer to that, but I mean Pittsburgh Plate Glass or Columbia Southern—in the production of sodium chlorate then go back to as early as 1936, its in-
[fol. 496] terest, its consideration or study as distinguished from actual production?

A. Its interest, yes.

Q. What approximately is the capacity of the plant which you operate in Quebec?

A. It is announced at 10,000 tons a year.

Q. Do you have any idea of approximately how many personnel are employed at that plant in a managerial capacity or in an executive capacity?

A. It is a part of our total chlorine, caustic, hydrogen operation there.

Q. Do you have skilled personnel in your employ who work at the plant in Quebec in the production of sodium chlorate?

A. Yes.

Q. Does Pittsburgh Plate Glass have a technical service force which aids it in its efforts to sell industrial chemicals?

A. Oh, yes.

Q. With specific reference to sales of industrial chemicals to the pulp and paper industry, do you have any per-

sonnel in your technical service force who specialize in the technical service problems of the pulp and paper industry?

A. Yes.

[fol. 497] Q. How many personnel in your technical service department are there who so specialize?

A. Approximately four full time.

Q. Four full time?

A. There are four full time employees.

Q. Your company, I take it, is currently engaged in selling products to the pulp and paper industry other than sodium chlorate?

A. Yes.

Q. Are those products chiefly chlorine and caustic soda?

A. Chlorine, caustic soda and pigments.

Q. In that connection would you explain to us the work of these four people engaged in technical service, how they aid you in your sales of products for the pulp and paper industry?

A. When you define technical service, we have two groups actually. We have the technical service group, which is a group of engineers or specialists as a part of sales, who work with the handling of the materials in the plant, the proper uses, and actually assist the mill in sometimes designing bleaching installations.

We also have in the market research group some people who are devoted to product development, who are famil- [fol. 498] iar with the pulp and paper industry and work constantly with it. These two, actually when you refer to technical service people, they work I should say, cross territory, they work together.

Q. You indicated that there were four people full time. They would be in both of those categories you have described?

A. That's right.

Q. Four all told?

A. Yes.

Q. I am not entirely sure that I understand exactly how it is that they aid your sales efforts to the pulp mills?

A. Let me give you an example. Suppose that Plant A wishes to put in a bleaching plant. It is usually our job to try to determine if they are going to use any chlorine or caustic soda, any soda ash, or any product that we man-

ufacture, and we hope to be manufacturing soon sodium chlorate, and to determine what type of bleaching process they are working with, what type of woods they are going to use, what types of pulps they are going to make, and actually get samples of their woods that they propose to use, bring them back to our laboratory in Barberton, Ohio, run sample runs, to try to see what processes are the best [fol. 499] that our products fit into so that we can sell them our products.

That is what these people do. That is an example of what they do.

Q. You mentioned that you have a laboratory somewhere in Ohio?

A. Barberton, Ohio.

Q. Do you have an additional personnel, a staff, a laboratory who work on these, or would the four technical service people you spoke of be the ones that do it?

A. I am counting the supervisor of the laboratory. He has a number of technicians that work for him. I did not count those.

Q. In terms of direct sales force, I am now limiting my question to the pulp and paper industry, and in generally the southern part of the United States, how many sales personnel, as distinguished from technical service people we are talking about, do you have and where are they located in the southern part of the United States, those now who deal with the pulp and paper industry in that part of the country?

A. I think we have 14. They are at Charlotte, Birmingham—Charlotte, Atlanta, Birmingham, New Orleans, Houston, and Dallas.

Q. These are places where you have offices out of which some 14 salesmen work. Is that correct?

[fol. 500] A. Yes.

Q. Those salesmen are all engaged, not full time but some of their time is taken up in calling on pulp mills in the southern area?

A. That is right.

Q. From your standpoint since you have a technical service force and are currently selling caustic in the southeast, does sodium chlorate fit naturally with your existing product lines?

A. Very much so.

Q. For how long a period of time have you had under consideration, and when I say "you," I mean your branch of Pittsburgh Plate Glass, and I take it you have headed this up, how long have you had under consideration the possibility of constructing a sodium chlorate plant at Lake Charles or some area in what we loosely refer to as the southeast?

A. We have been thinking about it in the sales group for about five years.

Q. In your thinking what particular area have you been interested in serving, either describing it by way of use or geographically if you can? What has been your target or the subject of your interests?

A. Since we have a plant located at Lake Charles we are supplying a number of pulp mills, and the pulp busi- [fol. 501] ness is growing in the southeast, and we were thinking about the southeastern United States.

Q. Mr. Bingham, I show you Plaintiff's Exhibit 274, directing your attention specifically to a map which appears—These pages do not seem to be numbered. It appears in the middle. It bears the legend, "Sodium Chlorate Consumers," etc.

Looking at that map could you define for us this target area of the southeast to which you have made reference? What territory are you talking about?

A. What we are thinking about starts over where we show consumption point 6 in Texas, comes up through Arkansas, and somewhere across the Tennessee line, over to the East Coast.

Q. Over to the East Coast, and how far north on the East Coast, Mr. Bingham? There are some numbers there, and perhaps you could define the northern limit as well as the western limit.

A. The point 37 you have indicated there, we are shipping from our northern plant now, so whether we would have shipped from the Lake Charles location which is shown —which is not shown on here, I don't know until we made freight studies whether that would be included in it or not.

Q. You would say that point 37 may be about the—— [fol. 502] A. It is marginal.

Q. Thank you. Beyond the pulp and paper industry in

this territory that you have just generally described for us do you have any plans to market the product of your plant to other industries, and if so where?

A. Yes. We are going to try to sell some to the defoliant industry, and some to the herbicide industry. Our main area would be in the Louisiana-Arkansas-Mississippi area.

Q. You have a plant in Canada, and I understand you said you have shipped as far south as location number 37 on this?

A. I think that is the spot we are talking about.

Q. Somewhere in Virginia at least.

A. Yes.

Q. How long have you been engaged in any sales to a point in Virginia?

A. Approximately a year.

Q. Have you offered any of your product from your Canadian operation to points further south than that?

A. Not actively.

Q. Why not, Mr. Bingham?

A. It is too far away in terms of freight rate for us to make any profit on it, to be profitable to us.

[fol. 503] Q. Have you explored or considered to any extent the attitude of the customer with reference to a customer's willingness, a customer say located in Alabama, his willingness to purchase from you shipments which you might ship from Quebec?

A. Yes. I cannot think of one in Alabama, but we have talked to certain plants located in this area, and they say, "When your are operating in Lake Charles come back to see us."

By the Court:

Q. You say "this area." You are talking about the southeastern part of the United States?

A. The Louisiana-Mississippi area, yes.

By Mr. De Lone:

Q. Mr. Bingham, at the time your company announced this decision to go forward at Lake Charles and did go forward you were aware, were you not, of the fact that Penn-Olin had announced its intention to build a plant at Calvert City, Kentucky?

A. Yes.

Q. Did that announcement by Penn-Olin of its decision to build a plant at Calvert City, Kentucky, alter your plans with reference to going forward with a plant?

A. No plans, it altered our announcement. We prob-
[fol. 504] ably announced a little earlier than we normally would have in this type of construction.

Q. Why?

A. We did not want Olin Mathieson to gobble up all the business. We wanted people to know we were going to be in the business.

Q. From your consideration of this market in the past three years, three or four years, five years I guess you said, since it has been under study by you has the advent of Penn-Olin with a plant at Calvert City enhanced the competition in the southeastern market area?

Mr. Freed: I object to that question.

The Court: There is an objection. Just a moment. State your grounds.

Mr. Freed: The Penn-Olin plant, as we understand it, has only recently begun production, and I am not sure that this answer requires anything more than speculation on the part of the witness.

The Court: Read the question back, please.

(The last question was read by the reporter.)

The Court: I think the form of the question is objectionable. I do not see how a study over a five-year period——

Mr. De Lone: I withdraw the question.

[fol. 505] By Mr. De Lone:

Q. Mr. Bingham, based on your knowledge of the market conditions in the southeastern area which you have previously described, can you tell us what, if any, effect Penn-Olin and its advent has had on competition in the market in the southeastern United States?

A. I am not sure whether it would be Penn-Olin or anyone that builds a plant that starts actively soliciting business in an area such as this is going to increase your competition. That is it as far as we are concerned.

Mr. De Lone: Your witness.

Cross-examination.

By Mr. Freed:

Q. The cells you were talking about at Corpus Christi, Texas, were they exclusively sodium chlorate cells you were working on, or electrolytic cells?

A. You mean since about 1936?

Q. Yes.

A. No, they weren't exclusively sodium chlorate. They were both chlorine caustic and chlorate cells.

Q. With reference to the relationship between chlorine and caustic and sodium chlorate, would you say from your knowledge of the technology and the production of sodium [fol. 506] chlorate that the technology of manufacturing sodium chlorate is very closely related to that of manufacturing chlorine and caustic soda?

A. I certainly would.

Q. Are the manufacturing techniques very closely allied?

A. I believe so, yes.

Q. Does experience in the manufacture of chlorine and caustic soda give a producer a considerable beadstart in going into the sodium chlorate business?

A. We think so.

Q. In your plans to embark on the sale of sodium chlorate in the United States, how much time do you contemplate spending on training your salesmen, your existing chemical salesmen, in order to equip them, give them capability to sell sodium chlorate to pulp and paper customers?

A. I assume you are talking about the same men that Mr. De Lone talked about?

Q. Yes, sir.

A. Well, we will pick certain of these key men from each of these offices, who will go up to our operation in Canada, spend some time at our plant. In fact, this is now scheduled to occur within the next 30 days.

[fol. 507] Then we will visit with our Canadian sales representatives, customers that we are now supplying from our Canadian plant, and learn about their operation in the plant. They will be up there for two weeks, then they will spend some time at our pulp laboratory at Barberton, probably a month total.

Q. And the form in which you will sell, according to

present plans, the sodium chlorate output of your Lake Charles plant will be both in bulk and in package?

A. Yes. Bulk in carloads and in drums.

Q. And the consumers to whom you will make available your sodium chlorate will be in the pulp and paper industry?

A. That will be one type of customer, yes.

Q. And the agricultural chemical industry?

A. Yes.

Q. If you have any customers in the uranium industry in the Intermountain area, would you sell sodium chlorate to them?

A. It is possible, Mr. Freed. We are not going to make any active solicitation of the uranium industry because it is a high freight equalization area for us, and frankly the use of chlorate, according to our best information, is on the decline in the uranium industry.

Q. If you have sodium chlorate available which is excess to your sales but is already in production, would you [fols. 508-524] sell it to the uranium industry in that area?

A. Possibly, if our freight equalization wasn't too high.

Mr. Freed: Your Honor, the Government has several additional question to address to this witness, which come within the scope of direct examination and in the Government's view are very relevant to this case, but which involve, we are advised by Mr. Bingham and his counsel, matters of considerable trade secret.

Mr. Anderson, who is here representing Pittsburgh Plate Glass, would like an opportunity to address the court before the Government asks Mr. Bingham these questions which might disclose trade secrets.

The Court: All right, I'll hear you, Mr. Anderson.

* * * * * * *

[fol. 525] Redirect examination.

By Mr. De Lone:

Q. Mr. Bingham, in the course of your testimony you were asked about sales to the uranium industry and indicated you did not plan to solicit uranium industry business.

Where, to your knowledge, is the uranium industry located so far as the places at which they would consume sodium chlorate? If you would like the map back again——

A. I would say the New Mexico area, and a little north; in that area. I am thinking of Grants, New Mexico, which happens to be a destination I am familiar with, just as an example, Mr. De Lone.

Q. You also described the training that you were going to give your sales personnel by taking them to Canada.

Will you add any additional sales personnel because of your sodium chlorate production, or will the existing force with additional training handle the sales of sodium chlorate as well as the chlorine and caustic they are now handling?

A. We have no plans at this time to add additional personnel or force specifically for sodium chlorate. We are constantly adding to these offices new men, new trainees who fit into our total line of business.

Q. Yes. Could you tell me whether or not the same [fols. 526-528] situation pertains with reference to your technical service force, whether the existing technical service force will also, without added personnel, handle the technical service problems related specifically to your sodium chlorate efforts?

A. We have employed a man in Canada who recently was employed primarily on sodium chlorate technical service and he has left us, and we will replace him.

Since we have become fairly well established we do not feel that he will be needed full time in Canada, so he will be working in the U.S., too. So you might say we are going to add a half a man. That is our plan now.

* * * * * * *

[fol. 529] Monday, November 20, 1961, 10 o'clock a.m.

PRESENT:

As before noted.

Mr. De Lone: Will you take the stand, please, Mr. Land?

HUGH C. LAND, called as a witness on behalf of the defendants, being first duly sworn, testified as follows:

Direct examination.

By Mr. De Lone:

Q. Where do you live?

A. I live in Tacoma, Washington.

Q. By whom are you employed?

A. The Pennsalt Chemicals Corporation.

Q. How long have you been working for Pennsalt?

A. Since 1946.

Q. Would you briefly describe for us the course of your career in Pennsalt?

A. I was hired in 1946 by Pennsalt at their Wyandotte, Michigan, plant to take charge of maintenance and con- [fol. 530] struction; became Assistant Superintendent there and transferred to Philadelphia about 1949 as production manager. I worked as production manager until the spring of 1955 when I became the General Manager of the Industrial Division in the East, and continued in this job until January or February of 1960, when I transferred to the West Coast as Group Vice President.

Q. Today you are Group Vice President on the West Coast. Is that right?

A. Yes.

Q. What in general is your responsibility as the Group Vice President of the West Coast?

A. We have two operating divisions which headquarter at Tacoma, one in agricultural chemicals division which sells products throughout the United States, and the other is an industrial division which essentially sells industrial chemicals into the 11 western states.

Q. One of the products you make at your West Coast operation, your plant in Portland, is the product sodium chlorate, is it not, sir?

A. That is correct.

Q. In your capacity as the vice president in charge of these western operations are you familiar with the general way of the distribution of the product sodium chlorate, that is, of Pennsalt's sodium chlorate product?

[fol. 531] A. I can give you a fair picture as to 1960, my first year on the West Coast. As I have said, we operate an agricultural division which sells products in the whole United States; they do sell some small quantities of sodium chlorate outside of the 11 western states but these are drum quantities and are not a large factor. We also sell sodium chlorate as an industrial chemical mainly in the 11 western states. There is an exception, I believe in the industrial chemical in two areas.

One of our main customers is the Chipman Chemical Company, who primarily handle weed killing in the railroad industry, and I believe we have made some shipments to them in Texas and Minnesota.

There are also three or four small bulk sales to pulp and paper industries outside of the 11 western states, but they are small.

By the Court:

Q. You speak about the sale for industrial uses. Is that all bulk sales?

A. Yes, primarily so.

Q. You mean some sporadic occasional shipments?

A. I remember one drum account, I believe it is into Minnesota, and it is Manganese Chemical, and here they potentially are a bulk user, but I think we have been [fol. 532] shipping them drums since 1955, and they are used in ore processing.

By Mr. De Lone:

Q. Mr. Land, it will be shown by stipulation that in 1960 Pennsalt sold 15,235 tons of sodium chlorate, all produced at its Portland, Oregon, plant, and that excluding sales made through Olin Mathieson the only sales it made beyond the 11 western states amounted in the aggregate to 1,590½ tons, which tons were shipped to Minnesota, Texas, Iowa, Kansas, Missouri, Oklahoma, Florida, Virginia, and Alabama.

As to such shipments beyond the 11 western states will you state as I call them off to you the reasons the shipments were made and the use for which the sodium chlorate was destined, if you know.

First, Minnesota, shipments of 419.6 tons to Chipman in bulk, and 150 tons in drums to Manganese Chemicals.

The Court: What year are we speaking of?

Mr. De Lone: 1960.

The Witness. The Chipman I referred to is for railroad weed killing. The Manganese Chemical, I believe, is ore processing.

By Mr. De Lone:

Q. In Texas there were shipments of 322 tons in bulk to Chipman.

[fol. 533] A. The same customer for use in the railroad herbicide area.

Q. When we refer to a bulk in distinction to drums, what do you mean? What is the difference between drums and bulk, a method of shipment?

A. Yes. It is usually a hundred-pound drum which is shipped in LCL, or carload lots, where the bulk shipments are in a bulk tank car, a hopper car arrangement.

Q. These two shipments to Chipman, or a number of shipments to Chipman, to Minnesota and Texas in 1960, are the only shipments to Chipman outside the 11 western states. Do you also ship to Chipman in the 11 western states?

A. Our contract with Chipman provides for Chipman to under-contract in, I believe, five states: Washington, Oregon, Montana, Idaho and California. We have the right to ship outside of that territory, or the right to refuse to ship outside that territory, under the agreement.

The Court: You mean on order from Chipman?

The Witness: On order from Chipman, if they request it. We have to ship under the agreement in the five states I have mentioned, but we have the right to refuse orders outside those five states. Chipman is, as you will recall, the original customer for Pennsalt's sodium chlorate at its Portland, Oregon, plant.

[fol. 534] By Mr. De Lone:

Q. You mean going back to the time it was first produced in 1941?

A. Going back to 1941. At that time I believe they took

all of our production. Consequently, we have worked very closely with Chipman.

Q. You made reference to the fact that in these five western states you are obligated to Chipman, whereas beyond that you have an option, if they request it. Are you obligated in an unlimited amount or up to a certain tonnage to deliver to Chipman in those five states?

A. Yes, I believe there is a limit on the tonnage.

Q. Turning then to a series of other shipments in this total group outside the 11 western states, in 1960, you shipped to Iowa 49½ tons in drums, to Kansas 30 tons in drums, to Missouri 35 tons in drums, to Oklahoma 40 tons in drums, and to Florida in drums 40 tons. What could you tell us was the reason or the use for those drum shipments in those states?

A. I believe that all of those shipments were made by our Agricultural Chemicals Division as a weed killer or a fill-in for use as a weed killer.

Q. I take it from what you said earlier that your Agricultural Chemicals operation is an entirely different department under your jurisdiction. Do you have one man [fol. 535] in charge of Agricultural Chemicals and a different man in charge of Industrial Chemicals in your West Coast operation?

A. Both of these divisions are headed by a general manager who is responsible for his sales and profits from his operation.

Q. Then is the Agricultural Chemical sales force, if you will, a different group than the Industrial Chemical sales force?

A. It is a complete, separate and different entity.

Q. Another shipment to Florida in 1960 in bulk was 363½ tons, which went to Foley, Florida.

A. I believe this shipment to Foley, Florida is to Buckeye Cellulose, a division of Procter & Gamble Company, and this is for the treatment of pulp.

Q. How long, if you know, have you been handling that Foley account?

A. I believe we obtained that Foley account when I was general manager of the Industrial Division East, in about the middle of about 1955.

Q. Why is it that you are shipping to Foley, Florida to that account?

A. Foley, Florida, is a favor to Procter & Gamble, who is a big customer, a large customer, in other products for the Industrial Division East. They had a tank car, their [fol. 536] own equipment, which they wanted to use in the purchase of this chemical, and we agreed to fill their equipment. This gives them an advantage in that the return mileage is payable to the owner of the transportation. As long as Pennsalt was willing to equalize the outgoing freight with eastern producers, which we were at the time, then Foley was able to get the advantage of the return mileage through the use of their own tank car.

The Court: I am not exactly certain that I understand what that arrangement is. Perhaps it can be explained a little more simply, perhaps with an illustration or example of a supposititious kind. It would be a little help to me.

By Mr. De Lone:

Q. Mr. Land, when we talk about an allowance for the use of Buckeye equipment, or the Procter & Gamble equipment—Buckeye is a subsidiary of Procter & Gamble, is that right?

A. Yes, sir.

Q. When we talk about an allowance for the use of their equipment, this is a payment made to the car owner by the railroad over whose line they travel, is that correct?

A. That's right.

Q. And it is on a mileage basis?

A. It is on a mileage basis.

Q. So that if you ship to Foley, Florida and you price [fol. 537] on the same basis as the price at which they could procure material from, say, Columbus, Mississippi, you sell at that price, you pick up any freight difference, they get the benefit of the car allowance for all the mileage the car travels between Portland and Florida and back, is that correct?

A. I believe they get the allowance for the return trip which is empty. This is the usual arrangement on all freight, as I understand it. Under any commodity that we ship there is a freight charge for shipping the commodity, and the railroads give an empty mileage allowance for the return of that car to its destination. Normally this comes

back to the shipper, who is the producer. This is an unusual arrangement where the customer actually gets the allowance.

By the Court:

Q. I don't know that it is terribly important, but I would like to understand it. When you ship to Foley, do you sell Foley f.o.b. Seattle or f.o.b. Foley?

A. We sell it f.o.b. Portland, freight equalized with their nearest producer.

Q. When you say f.o.b. Portland, what do you mean "freight equalized with their nearest producer"?

A. The customer then says, we can obtain this material from Columbus, Mississippi. The freight from Columbus, Mississippi is X dollars; the freight from Portland is Y. [fol. 538] dollars, so we will pay you only the freight from Columbus, Mississippi.

Q. In other words, to state it a little differently, you sell them f.o.b. Florida but in figuring your price you take your f.o.b. Portland price and add to it an amount which is equal to the freight between Columbus, Mississippi, and Florida?

A. That is the end result.

Q. That is a feasible thing for Procter & Gamble, or Buckeye, its subsidiary, because of certain collateral advantages it gets by reason of owning a tank car, advantages which it gets from the railroad?

A. That is correct.

Mr. De Lone: Thank you, sir.

By Mr. De Lone:

Q. I don't know that I did cover with you, Mr. Land, in the course of calling these items off, the fact that in 1960, 150 tons in drums was shipped to Manganese Chemicals in Minnesota. Why was that shipped?

A. I believe we covered that, and that was a shipment for ore processing, I believe.

Q. Is that again a customer of long standing and do you recall approximately how long you have been servicing that account?

A. I believe it was obtained about the same time as the [fol. 539] Buckeye Cellulose account, in mid 1955.

Q. Then this was obtained by the Industrial Division East, I take it?

A. As I remember, it was.

Q. In the same year, 1960, you shipped 90.8 tons in bulk to Union Camp Bag in Virginia.

A. Yes. This is for the bleaching of pulp.

Q. Are you familiar with the circumstances surrounding why that shipment was made and how the business was obtained? If you are not, don't hesitate to tell us, Mr. Land.

A. I believe that this is due to the fact that L. M. Shanaman, our sales manager in the West, knew the purchasing agent and was able to obtain a car or two of business as a personal favor to him.

Q. Do you know how long those shipments have been going on?

A. I believe only the last two years.

Q. And in Alabama you shipped 50.1 tons to Gulf States Paper. Is that likewise for the pulp bleaching use?

A. That is for the bleaching of pulp. I believe this was obtained by our Agricultural Chemicals Division manager again as a personal favor, where he knew the purchasing agent of the company.

Q. In the current year 1961, to your knowledge, has there [fol. 540] been a substantial change in the patten of distribution of sodium chlorate produced at Portland, Oregon as against the 1960 pattern which we have just been discussing?

A. I have not reviewed the 1961 figures, and I only usually do that at the end of the year so I can't tell you precisely what the 1961 figures show, but do not believe that there is any change in that general pattern.

Q. Today could Pennsalt dispose of the capacity of its Portland plant entirely west of the Rockies?

A. Yes, sir.

Q. Now turning, Mr. Land, to the period when you were manager of Pennsalt's Industrial Division East, the period from 1955 to 1960, would you tell us essentially what your responsibility was in that capacity as manager of the Industrial Division East in those areas?

A. I was responsible for the production and sale of products produced in the Industrial East plants, and for the profit from that operation.

Q. Had you prior to 1955 had sales responsibilities in Pennsalt?

A. No.

Q. At this time from 1955 on were Agricultural Chemicals handled as a responsibility of the Industrial Division East?

A. I believe about the first of 1955 they were transferred [fol. 541] to the West as a responsibility of our western operation. However, continuing in early 1955 we produced some products for them, I believe both DDT and BHC, which were continued as a production item in the East.

Q. Did you in the Industrial Division East produce any sodium chlorate?

A. No.

Q. As a manager of the Industrial Division East, or as a manager of any division of Pennsalt what was your responsibility with reference to new projects or new products or processes?

A. A division manager has the responsibility not only for the profits from the products he is producing at that time but also to plan for new products or revisions to his processes over a five-year period.

We have a regular planning program within Pennsalt, and each division prepares a part of this plan. We call it our plan for future growth, or you will find reference to it as a five-year plan, under which each division manager assembles potential projects which are submitted to the corporation for review, and once accepted by the corporation are incorporated into a company program for growth, or a five-year plan.

Q. In this period of 1955 to 1960 would a sodium chlo- [fol. 542] rate plant at some location in the East or Southeast, such as at Calvert City, had it been proposed would it be one of the processes or projects in this category that would be subjected to the procedure you have described?

A. Yes, it would. I believe it would go back even a little bit prior to 1955, when I became general manager. Immediately prior to 1955 I worked in the Industrial Division as its production manager. As such I worked closely with George Grogan who was then sales manager in the division in the development and recommendation of these projects to Mr. William Drake, who was then general manager of

the division, so I can recall working with Mr. Grogan on a sodium chlorate project as early as late 1954 and continuing then during the later period you mentioned.

Q. I wanted to be sure we understood the corporate procedures first, and we will go into them in more detail as they affect this case.

I take it from your answer then that the normal course if you were to embark on constructing a sodium chlorate plant somewhere in the south or east, and selling its products, would be first to incorporate that into a division recommendation for the program for future growth or the five-year plan?

A. That is correct.

[fol. 543] Q. The second step would be for the corporate management to accept that recommendation and take it into the corporate plan, if you will, for future growth?

A. That is correct.

Q. If those two steps are taken with any new project such as this where does it go after it has been incorporated into the corporate program for future growth?

A. Once it is accepted as a part of the corporate program for future growth it then goes back to the division to do the necessary engineering, to prepare an appropriation request. Under our procedure we do at this point an essentially complete engineering before we take this appropriation back internally to our management committee or now our appropriations committee, and if it is approved there it will be submitted to the board of directors who must approve all appropriations over $50,000.

Q. When you say, "We do virtually a complete engineering before submitting an appropriation request,"——

"We" is a broad term. I want to understand the mechanics so we all see how it works within your organization.

A. It can work several ways, depending upon the size and nature of the project.

The engineering can be done within the division, or [fol. 544] it can be done by——

Q. That is within the division that has sponsored the project?

A. Within the division that has sponsored the project.

Q. Yes.

A. —or it can be done by a staff division of the company which would be our Technical Division, and our central engineering department, or it can be done at an outside engineering office, usually under the direction of our central engineering department.

However, the preparation of the engineering is done for the division manager involved. He must be willing to accept the figures as presented to him and present it at his project to the management committee or the appropriations committee. This is work done for him.

Q. Then before he finally presents a request to have the money appropriated he gets the engineering results together and he must decide whether he is still willing to sponsor the project and ask for the money?

A. I did not emphasize it, but I am sure it is obvious that there is more here than just getting the engineering figures. You must have a definitive sales estimate; you must actually know what the market is; and this is incorporated into the program that is presented to the man-
[fol. 545] agement committee.

Q. In an appropriation request, so we can simply keep these two terms separate——

A. In an appropriation request.

Q. Thank you. You alluded earlier to the fact that even before you became manager of the Industrial Division East you recalled something about working with Mr. Grogan on this subject of sodium chlorate.

Would you tell us your first contact with the possibility of a sodium chlorate plant somewhere in the South, or Southeast, or East, a Pennsalt plant?

A. The possibility of considering a chlorate plant in the East became a reality when we actually installed a plant at Calvert City, Kentucky, in that at this point we had low cost power available to us from the Tennessee Valley Authority; we had also in 1953 completed a chlorine caustic operation which gave us experience in electrolytic cell operation; and so about this period we could for the first time realistically look at producing sodium chlorate in the East.

Perhaps the most essential factor in the production of sodium chlorate is low cost power, this is a must.

Q. You said the possibility became a reality. Do you

mean by that that the sodium chlorate plant became a real-
[fol. 546] ity, or the consideration of it became within reach?

A. I believe that consideration came within reach is a better way of phrasing it.

Q. I understand that this is related to the fact that you had an operation at Calvert City with low cost power.

Was your first consideration of this after you became division manager of the Industrial Division in 1955—What was your consideration with Mr. Grogan you mentioned earlier?

A. It really started in 1954. Mr. Grogan felt that it was possible to sell some sodium chlorate, and he at that time made a study, largely on his own, working through the one man he had in the South, I believe in Atlanta, Georgia, and contacted the pulp and paper mill in the Southeast and came up with an estimate of the amount of sodium chlorate he felt could be sold. This estimate was actually given to our central engineering department for a preliminary look-see at the economics to determine whether such a plant was feasible, and whether or not it could be included in our division planning.

Q. Mr. Land, I show you Plaintiff's Exhibit 64. I note on there at the top the number "L-14". What does that mean?

A. That is Pennsalt's designation for "Hugh C. Land."

Q. You work by letters and numbers rather than names
[fol. 547] for the distribution of copies. Is that right?

A. Yes.

Q. Is this P-64, does this show the estimate by Mr. Grogan to which you have just made reference?

A. It does. It records that Mr. Grogan felt he could sell from 5,000 to 8,000 tons per year of sodium chlorate out of a plant located at Calvert City.

Q. Do you know whether Mr. Grogan had made any effort either at this time or previously to sell any sodium chlorate out of Portland as distinguished from out of Calvert?

A. I do not believe that he had.

Q. Do you know how he assembled this estimate of 5,000 to 8,000 tons out of Calvert?

A. He assembled it virtually himself and working through the one salesman we had in the South, I believe we had a man by the name of Bob Wurst of Atlanta, Georgia, who was in this immediate area, and through his contacts and Mr. Grogan's personal contacts with the pulp and paper industry they determined this was approximately the amount of material they could sell.

Q. What was the name of the man at Atlanta?

A. Bob Wurst.

Q. Is he still there?

A. I believe he died last year.

[fol. 548] Q. You indicated that he was the one salesman —I take it you mean for Industrial Chemicals—in the South?

A. I do mean for Industrial Chemicals, and I mean essentially the Southeast.

Q. Has he been replaced?

A. Yes. He has been replaced by a man from Philadelphia, I believe Mr. Binns.

Q. Is it still just one man?

A. It is still just one man.

Q. Is he responsible for chemicals other than sodium chlorate, and for sales to industries other than the pulp and paper industry?

A. Yes. He is responsible for the sales of all industrial chemicals in that area.

Mr. De Lone: Would your Honor indulge me a moment? There is some confusion about copies and I want to be sure we are both working the same.

By Mr. De Lone:

Q. Mr. Land, you made reference to the fact that as a result of Mr. Grogan's study or estimate of the potential market for sodium chlorate out of Calvert some studies on the economics were made.

I show you PX-66 and ask you if that is the study to which you have reference? It is a document dated March [fol. 549] 8, 1955, from Mr. Woodard to Mr. Drake.

A. Yes. Mr. Woodard is the chief engineer of our central engineering department. He says in this memorandum that he has used plant cost capital cost figures from

Mr. Shanaman who was head of our West Coast operations, and who could supply information on capital costs of a chlorate plant from his existing operation.

He shows that his preliminary investigation of return on investment would be 6.6 to 10.5% return for a 7200 ton per year plant, and 10% to 14.9% for a 12,000 ton per year plant.

Q. At this time in 1955 what was your company's policy with reference to the return sought or would seek in a new project such as this?

A. I believe it was 30%, the guideline that was set as a standard for projects of this type.

Q. The concluding paragraph says:

> "Under these conditions the basic return for sodium chlorate manufacture is not attractive. We believe the expense of refining these figures further would be unwarranted."

To your knowledge were the figures refined any further following P-66, March 8, 1955?

A. Not directly as a result of—They were tabled as [fol. 550] a result of this memorandum.

The initials that you see at the top of the memorandum signify that we all agreed that the figures should not be refined further at this time.

Q. I am sorry. I meant to ask you about those and I had a copy that did not have it on there.

I see at the top—Would you just interpret that so we can understand the routing and what happened to this document? There is a lot of scribbling on the top there.

A. This document was sent to Mr. Drake, who either at this time was the general manager of the division or had just recently been made the executive vice president of the company. I became the general manager of the division at the time he became the executive vice president, and we had a transition period.

Since the original work was initiated by Mr. Drake the report came back to him. He then sent it to his people operating in the division, and you will note from the initials, the top one was "L-14." The top initials are mine.

The second initial is "L-16," Mr. Lucard. He was head

of our market development group in the division. He said "Yes."

The third set of initials are Mr. Grogan's, "G-11". He said "Yes."

[fol. 551] The fourth set of initials are "C-28," Mr. Collins, who was then an assistant to Mr. Beitzel, the president, and he initialed yes, that he agreed that these figures should not be further refined.

Q. In essence Mr. Drake said, "Do you agree with the conclusion here," and each of you to whom he sent it ticked off and said "Yes," and that is what this scribbling at the top means?

A. That is correct.

Q. Following that did you or Mr. Grogan then pursue any further the question of sodium chlorate out of an Eastern or Southeastern plant?

A. Yes. From March of 1955 until about the end of 1956 I can remember three efforts made in the division to improve the return on investment shown in this memorandum.

As I recall we had information that a gas transmission company would be willing to become a partner, and the essence of the partnership would be that they would contribute capital, as much as 100% of the capital, and take a nominal return, and Pennsalt would contribute the know-how of manufacture and be responsible for the sale. Consequently we investigated the possibility of obtaining a partner on this basis.

Q. I want to show you a document in that connection. [fol. 552] I show you, Mr. Land, Plaintiff's Exhibit 68, a memorandum from Mr. Woodard. He was in engineering, did you say?

A. He was the chief engineer of our central engineering department.

Q. —to Mr. Grogan dated April 28, 1955. Does this reflect the sort of arrangement you were just describing with a gas transmission company?

A. Yes. This talks about—I believe in this case they are talking about the partner supplying 100% of the capital, and by that I mean the fixed capital on the job, and Pennsalt then would supply the working capital and know-how for producing the product and the sales effort.

This shows a very favorable return to Pennsalt. How-

ever, we were not able to find a partner that was willing to go along on this basis.

Q. It was pursued but did not come to fruition, I take it?

A. No, sir.

Q. The third sheet of this document shows a return on Pennsalt's investment varying between 42% and 62%, quite in contrast to the return figures on the earlier document. How did the return jump so much, Mr. Land?

A. Well, it was strictly the fact that some $3,500,000 was going to be contributed by the partner, and the figure [fol. 553] used here was at 6%.

Q. The partner would draw 6%, or get a 6% return on his contribution of all the capital, is that right?

A. That is correct. That is the theory behind this proposal. It wasn't very practical and we weren't able to get anyone to go along with us.

Q. What would Pennsalt get a return on?

A. The return would essentially be the working capital, the accounts receivable, the inventory, and the miscellaneous dollars invested. This would be nice if you could do it. We weren't able to.

Q. You mentioned that this was one of three attempts to go forward with sodium chlorate to improve the return so that you could go forward with it?

A. Yes, sir.

Q. What were the other two?

A. Another approach I remember was that there was some feeling that if the plant was built in Puerto Rico, there would be a tax advantage. So some figures were put together to reffect this tax advantage, and while it was considered within the company I don't believe anything concrete came of this attempt either.

The third proposal was a suggestion that we contact someone else in the industry who was interested in selling [fol. 554] sodium chlorate, and I believe there were some initial contacts with Olin Mathieson to see if we could get a larger share of the chlorate market through working with a partner. I believe in this period there were some initial contacts made with Olin Mathieson.

Q. Did you make those contacts?

A. I did not make the contacts. They were made by George Grogan.

Q. Was Grogan under you? Did he report to you, and does he at this time report to you?

A. At this point in the program he was manager of sales reporting directly to me as Division Manager.

Q. Could you fix in a general way the time period in the course of which Mr. Grogan, as far as you know, had some discussion with Olin Mathieson? If it will be of any aid to you, I show you PX-73.

A. Yes. I believe that this is the end of the period starting in early 1955.

Q. Following that March 8th memorandum which showed the return for yourself was unattractive?

A. Correct. Starting with March 8, 1955, to December 27, 1956, where it is reported here to Mr. Drake. I am sure that it is within this period of time.

Q. I see in this exhibit, PX-73, it says, "Incidentallly, [fol. 555] the last time we talked with Olin Mathieson about building a chlorate plant they told us they had investigated the possibility of building a plant in the East and that their cost figures, both capital and manufacturing, were surprisingly close to ours."

You wrote this memorandum. I take it that had reference to what Mr. Grogan had reported to you, is that correct?

A. That is correct.

Mr. De Lone: It is called to my attention that I may have referred to this document as PX-63 rather than 73. I will ask the Court Reporter to make sure that it comes out 73.

By Mr. De Lone:

Q. Did whatever talks Mr. Grogan had with Olin Mathieson ever come to fruition in terms of moving forward with any joint venture with Olin Mathieson in this period prior to December 1956?

A. They did not.

Q. Did they come to the point where the Division Manager felt they were sufficiently concrete that he should get into them and see if they should be pursued further?

A. No.

Q. You recall about this same period in December of [fol. 556] 1956 that the Oldbury Chemical Company an-

nounced that it was going to increase the capacity of its Mississippi plant. I show you in that connection Plaintiff's Exhibit 71.

A. I can remember this letter very well since it is very disconcerting to see your competition expanding in an area you would like to be, and you find yourself unable to justify the project.

Q. It has essentially been your responsibility up to this time, had it not, if there was to be a sodium chlorate plant in the East, to recommend it?

A. It certainly was, and this letter suggests that maybe I didn't know what I was doing.

Q. I see that you received a copy of PX-71, which perhaps might be referred to as Mr. Drake's needle, and also a copy of Mr. Fred Shanaman's response to that, PX-72. Do you have that before you?

A. Yes, sir.

Q. PX-73, which I showed you previously, your memorandum to Mr. Drake of December 27, 1956, is your response to Mr. Drake's memorandum to Mr. Shanaman of December 17th, and Mr. Shanaman's reply to Mr. Drake of December 20th?

A. That's correct.

Q. Your memorandum, PX-73, starts out with the words, [fol. 557] "I agree wholeheartedly with Mr. Shanaman's comments of December 20." What comments of December 20?

A. Essentially I am agreeing with the fact that we should determine once and for all why we are not able to find a suitable project for sodium chlorate in the East. At this time we had been reviewing the project for some two years. We find that others are at least expanding their production in this same market area, and we do not have a project. Consequently, I am agreeing that it would be a good think for someone else to take a look at this opportunity to see whether or not we in the division have been seeing all that was in it.

Q. Was it decided, as apparently both you and Mr. Shanaman agreed, that you would make a further investigation to see whether or not Pennsalt could go forward with a sodium chlorate plant in the East or South?

A. Yes. This letter of January 22 from Cooper Willits to Dr. LaLande records——

Q. That is a letter that is marked PX-74?

A. Correct. It records the result of a meeting which set up a task force headed by Dr. LaLande, and as members, Errol Karr, who was technical supervisor on the West Coast, and Mr. Glenn More, who was General Manager of the Industrial Division on the West Coast, as members of this committee.

Here we are bringing in the Technical Division and [fol. 558] the West Coast people for their knowledge of chlorates to review Pennsalt's position in sodium chlorate, with specific relationship to the Southeast.

Q. Did that group, or task force as it is called, in due course attempt to answer the questions set forth in PX-74, and in that connection I show you Plaintiff's Exhibit 82?

A. Yes. This report, you will note, is titled Part One. It was the feeling of the committee that they should initially report on the return on investment phase of this project to see if with a further refinement of the engineering figures we were able to obtain a project that was worthwhile to Pennsalt.

You will notice that the figures on page 2 show that for a 15,000-ton per year plant the return on total investment was 11.4%. If you went to a 20,000-ton per year plant, the return on investment was shown on page 4 to be 14.1%.

Since this rate of return on figures substantially higher than we in the Industrial Division had felt we could sell was still not up to company standards, they logically raised the question should we go on with Part Two of the task force, which would be to make a more detailed survey of the market position.

[fol. 559] Q. Did they go forward, or did someone go forward with Part Two, finishing out the study from the marketing standpoint?

A. Yes. The initial approach was to ask the Industrial Division in the East, and the Industrial Division in the West, to contribute a man to the study, and a third man was to come from the Market Development Section of the Technical Division. This three-man group would then prepare a market evaluation of sodium chlorate in the East.

Since our original market information had been made by our sales people, and Mr. Grogan, it was very difficult for us to release a man on a full time basis. The Industrial Division in the West had the same problem. Consequently, it was decided to go outside, and I believe Arthur D. Little was hired to make this survey, and they reported subsequently, later in the year, along with a report from our Market Development Division.

Q. Arthur D. Little's report, to which you have made reference, Mr. Land, is Plaintiff's Exhibit 96-B, is that correct?

A. That is correct.

Q. And Plaintiff's Exhibit 96-C is the Commercial Development Department's comments on the Arthur D. Little report?

[fol. 560] A. That is correct. I saw them all together.

Q. Those reports, as I think show on their face, were received one in the late summer and the other in the early fall of 1957, about October. Did the Pennsalt management, or your division, then come to grips with the total task force report, Parts One and Two, with reference to whether or not Pennsalt would erect *a* construct a sodium chlorate plant in the East or the South?

A. When I received a copy of these reports, and as I received it it was a single report, I sent a copy down to Mr. Grogan, who had worked with the figures originally for me. However, we did not do anything with it of a material nature until after the management committee had been assembled to review the report together.

Q. I show you in that connection Plaintiff's Exhibit 99. Is that a memorandum of a management meeting to consider the Arthur D. Little report, and the other reports that had been assembled on this subject?

A. Yes, it is, and as a result of this meeting I believe I asked George Lawson, who at this time was head of the sales of Industrial Divisions, to review the report and give me an up-to-date estimate of his feeling of what the Industrial Division could sell in terms of sodium chlorate to the southeast.

[fol. 561] You will also note on the last page that the Central Engineering Department was also asked to give us some additional estimates as to capital cost.

Q. I show you Planitiff's Exhibit 97. Pursuant to what was decided at this meeting of November 6, which is reported on PX-99, did you then write the memorandum PX-97 to Mr. Lawson, then in charge of sales?

A. I did.

Q. Did you also discuss at that time with Mr. Lawson, or anyone else in the Sales Department under you, the prospects for sales of sodium chlorate in the East?

A. I did not discuss it formally with Mr. Lawson since he was unfamiliar with the sale of sodium chlorate in the East, but did discuss it in general terms with Mr. Grogan, who at this time was Field Sales Manager for the Industrial Division, who, as you recall, had made the original survey.

Q. Do you have PX-98 with you there, a memorandum from Mr. Grogan to Mr. Lawson?

A. I do, and this reflects in general the discussion that I had with Mr. Grogan.

Q. Does it allude to any discussion you had with him, or do you mean that the tenor of this is the same?

A. The tenor of this is the same as the general discussions we had during this period.

[fol. 562] The Court: For my own future reference I would like the record to show that both PX-99 and PX-97 refer to the possibility of a joint venture with Olin Mathieson.

By Mr. De Lone:

Q. Incidentally, Mr. Land, in the concluding page of Plaintiff's Exhibit 99, among next steps to be taken, it says, "L-14 will have explored the partnership idea with Olin Mathieson." You are L-14, are you not?

A. That is correct.

Q. Did you subsequent to November 6th and prior to a meeting about which I am going to ask you on December 5, 1957, explore this idea with Olin Mathieson?

A. I didn't for the straightforward reason, at least to me, that if it were possible to obtain a project solely for Pennsalt, this would be the Division's preference. So consequently I talked both to my own people about the marketing and to the Central Engineering people about

the capital cost and return estimate figures, leaving for a later date the possibility of discussing a joint venture idea with Olin Mathieson. Consequently, I did nothing with that part of the memorandum.

Q. The next succeeding item on PX-99 is, "W-17 will prepare updated cost estimates." I show you Plaintiff's Exhibit 100 and ask you if that reflects the updated cost [fol. 563] estimates on these tonnages of 25,000 and 30,000 tons, as requested in PX-99, paragraph 9(c)?

A. Yes. This shows that the 25,000-ton per year sodium chlorate plant was considered. It also shows that Mr. Heitman was contacted again. Mr. Heitman is a project engineer at Tacoma, Washington who is familiar with the capital costs of the sodium chlorate plant. It also continues that the return on total investment is 15.9%.

Q. Did the same group, most of them, subsequently meet to decide what Pennsalt would do in connection with this possibility of a sodium chlorate plant in the Southeast which had been under study by the task force and which was considered at this meeting of November 6, 1957? In that connection I show you Plaintiff's Exhibit 102.

A. On December 5, 1957, a meeting was held primarily to discuss the possibilities of Pennsalt developing a project of sodium chlorate in the East. Remember at this time the division had spent approximately two years in its review. We now have another year of time spent by people outside the division looking at the project, and we still are not able to visualize a project that is reasonable under Pennsalt's standards.

Consequently, the conclusion primarily reached at this meeting was that we all agreed it was unlikely that Penn- [fol. 564] salt would be able to build a chlorate plant in the East on its own. If it were unlikely, we might still be able to do this job through a partner, and we concluded that Olin Mathieson would be a likely partner.

Q. After so concluding, did you contemplate or authorize any approach to Olin Mathieson?

A. Yes. At this period Mr. Shanaman had some sodium chlorate from his Portland operation which he could not sell in the 11 Western states, and consequently was willing

to supply 2,000 tons per year to Olin Mathieson for an introductory marketing program in the East.

I believe at this meeting the authorization was made for Mr. Shanaman to work the details of this arrangement out with Mr. Logan. I also believe at this time it was suggested that Mr. Drake would contact Olin Mathieson with regard to a joint venture and at this point the contact with Olin Mathieson was out of my hands and so I actually never did anything about the Olin Mathieson account.

Q. You said that Mr. Shanaman had some tonnage that he couldn't sell. Do you recall, or are you familiar with how it was that he had excess tonnage at this time, in December of 1957?

A. I believe he had expanded his plant in the fall of 1957 and consequently had initially some material that [fol. 565] could be sold outside of the 11 western states, and that it was his practice to so move it until the time that he was able to sell it closer to home, at which time he remained within his normal selling area, which is the 11 western states.

Q. We have been referring to "his plant" and "his normal selling area." I want to be entirely clear. Mr. Shanaman at this time was the head of the West Coast subsidiary of Pennsalt, is that correct, referring to Mr. Fred Shanaman?

A. I can't be sure that it was still a subsidiary at this time, but he was certainly in charge of our operations at Tacoma, Washington, which included the sodium chlorate plant at Portland, Oregon.

Q. It was indicated earlier that you sent PX-97 to Mr. Lawson asking for his comments on the various studies and reports that are chiefly marked PX-96, and that you did have some discussions with Mr. Grogan prior to December 5, 1957. Did you get a response from Mr. Land prior to this December meeting, or did you get it thereafter? I show you in that connection Plaintiff's Exhibit 107.

A. I believe you mean did I get it from Mr. Lawson?

Q. I beg your pardon. Did you get it from Mr. Lawson?

A. I believe I have explained that about this time we consolidated two operating divisions into the Industrial

[fol. 566] Chemicals Division. Consequently, Mr. Lawson was new at working with me as head of sales.

In January he replies to me that he doesn't believe he should do any further work on sodium chlorate since it is not an active project in Pennsalt.

Q. When you say that you have reference to PX-107?

A. I have reference to PX-107.

Q. Had you discussed with Mr. Lawson prior to the time he wrote PX-107 the decision arrived at the meeting of December 5, PX-102?

A. Yes, I am sure we had given him the results of the meeting so that he knew generally the status, although, as you will see from further letters to Mr. Lawson, I still asked him to complete his original assignment, for several reasons.

First, I wanted the information complete in the file. We had spent a good deal of time on sodium chlorate. We had spent several thousand dollars with Arthur D. Little to obtain market information, and I wanted that translated into industrial chemicals experience and recorded in the file. Even though we had verbally gone over the information I felt it was good discipline to put it into the file. I also wanted to let Mr. Lawson know that assignments of this type should be completed.

[fol. 567] Q. You have made reference to further correspondence. I show you Plaintiff's Exhibit 108, Plaintiff's Exhibit 117, Plaintiff's Exhibit 350, and Plaintiff's Exhibit 124, and ask you if that is the subsequent chain of correspondence to which you have made reference?

A. It certainly is. I can assure you that the next report I got in a little shorter time than the first one.

Q. Was there any other reason than the one you have mentioned of wanting to complete the file and wanting Mr. Lawson to know that when you asked for something you would like to receive it, was there any other reason for your pursuing Mr. Lawson for sales estimates for sodium chlorate, or sales forecasts, in light of the decision of December 5, 1957, that Pennsalt would not go forward with a plant on its own?

A. Initially those two were the primary reasons. However, as time marched on, we began to become more interested in ammonium perchlorate. You will recall that at

the start of 1958 ammonium perchlorate was getting a lot of attention as a missile oxidizer, and consequently, as time goes on in 1958 and the importance of ammonium perchlorate becomes evident to Pennsalt, since sodium chlorate is used to make ammonium perchlorate, the figures become important for that reason later.

Q. From your standpoint as Division Manager of the [fol. 568] Industrial Division of Pennsalt did you ever seriously consider after December 5, 1957, the possibility that you would recommend that Pennsalt erect or construct a sodium chlorate plant alone, exclusive of any ammonium perchlorate feature, a sodium chlorate plant alone and on its own in the Southeast following December 5, 1959?

A. As Division Manager I had no serious plans, and remember of no considerations of a sodium chlorate plant by itself after December 5, 1957.

Mr. De Lone: If your Honor plans a morning break this might be an appropriate time.

The Court: Very well. We will take a ten-minute recess.

(At this point a short recess was taken.)

Mr. Connelly: May we go off the record for a moment?

The Court Is it all right, Mr. Freed?

Mr. Freed: Yes.

(Discussion off the record.)

Mr. De Lone: If the court please, this morning the witness was shown Plaintiff's Exhibit 66 in a form somewhat different that the court's original copy. By agreement of counsel we would like to substitute the copy which was shown to the witness for the copy previously marked [fol. 569] Plaintiff's Exhibit 66 because it is a more complete copy.

The Court: Permission to substitute is granted.

By Mr. De Lone:

Q. Mr. Land, you averted in the course of your earlier examination to the decision on December 5, 1957, to permit Mr. Shanaman to sell some of the West Coast production, either to sell or to make arrangements with Olin

Mathieson at least involving the distribution of some 2,000 tons of sodium chlorate produced in Pennsalt's western plant.

Did that go forward in the year 1958? Did Olin handle some of the Pennsalt production from the West Coast?

A. Yes, they did.

Q. Did you participate in any meetings in the early part of 1958 when that subject or any other subject so far as sodium chlorate and Pennsalt and Olin were concerned, meetings now with Olin personnel, and I call your attention to Plaintiff's Exhibit 111, which I think you have before you.

A. Yes. This memorandum records a meeting held in Philadelphia attended by Mr. Drake, Mr. Shanaman and myself at which John Logan talked to us about a potential joint venture.

Q. The memorandum records at the beginning of the third paragraph:

> [fol. 570] "It is felt that neither OM nor Pennsalt should move in the chlorate or Perchlorate field without keeping the other informed and I——"
>
> Being Mr. Logan.
>
> "—agreed to do so."

Was there any agreement entered into at that meeting on February 3, 1958, which is reflected in PX-111, was there any agreement beyond the agreement or understanding to keep each other informed?

A. No, there was not. To the contrary, I think the feeling on Pennsalt's part, in fact I know the feeling on Pennsalt's part was if a project could be put together on Pennsalt alone we would at this time or at a later time do it as a Pennsalt project. I am sure Olin Mathieson felt the same way.

Consequently as a matter of courtesy we merely agreed not to continue joint operations or discussions if we had decided to go into the project individually.

Q. Does Mr. Logan's memorandum, as you have read it, accurately reflect the substance of what transpired at the meeting on February 3, as far as you remember?

A. It does, as far as I remember.

Q. Mr. Land, I show you a series of letters between you and Mr. F. C. Shanaman which are numbers PX-131, [fol. 571] 133, 135, 137, 138, and ask you if you can tell us what your understanding was of the mission of the Industrial Division East in the period 1958-1959 with reference to the sale of sodium chlorate produced by your West Coast facility at Portland, particularly in light of what you knew about the fact that Olin was also handling some tonnage from your western operation?

The Court: Read that question back.

(The last question was read by the reporter.)

The Court: All right.

The Witness: The mission of Industrial East with regard to sodium chlorate is based upon one sound factor of purchasing policy. We can supply material to a purchasing agent in the East on a sustained basis only if we are in a position to back up that supply with a producing facility in that geographical area.

What I am try to say is that it was not possible or profitable for us to sell chlorate from Portland, Oregon, the plant at Portland, Oregon, on a sustained basis unless we had plans to build a plant in the East. In December the decision had been made——

Q. December of what year?

A. 1957. The decision had been made that it was unlikely we could proceed on our own. Consequently there [fol. 572] was no incentive for the Industrial Division in the East to sell sodium chlorate.

I was also aware that Mr. Shanaman had made an arrangement with Mr. Logan to supply him with the material which was "surplus" from the Portland plant, so I consequently was not actively seeking sodium chlotate business in the East.

Q. Prior to December of 1957, the period since you have been in charge of the Industrial Division East, what if any sodium chlorate had you been selling during that period from 1955 to 1957 in the East?

A. I believe it was only Foley, Florida, and Manganese Chemical.

Q. The one in Florida, the other in Minnesota that we previously referred to?

A. Yes.

Q. Why is it that the customer would not purchase unless you had a plant in the East?

A. I believe it is a rather simple fact that while a purchasing agent normally regards two sources of supply as important to him he wants both sources of supply, or, in fact, if his only source of supply, if he chooses to buy from one company, to be in a position to service his account, to supply his emergency needs, and to supply him on a continuing basis.

If the supply is from a distance as far away as Port- [fol 573] land he recognizes immediately that his supplier can potentially find a place for that sodium chlorate closer to him in Portland. Consequently some time in the future he may not be in a position to buy. So to have a continuous source of supply, unless there is an emergency, a purchaser will insist that the supply come from his geographical area.

Q. In this period from 1958-1959, did Pennsalt Industrial Division East continue to handle these two accounts which had been developed back in 1955, that is, Foley, Florida, and the Manganese Chemical Company?

A. Yes.

Q. You mentioned earlier that following the end of 1957 Pennsalt's interest in perchlorate, ammonium perchlorate, become more active.

I show you PX-113, which is the press release, and though undated it is agreed it is approximately February 11, 1958, and ask if that plan announced there of a plant in the West Coast to make ammonium perchlorate is the first tangible evidence, if you will, of Pennsalt's interest, or is it something you went ahead and did in the ammonium chlorate field?

A. Yes. This announces the first really pilot plant installation at Portland, Oregon, to produce ammonium perchlorate. It also speculates that another plant might [fol. 574] be built in the South, and at this time I believe we had prepared estimates concerning a 6,000-ton ammonium perchlorate plant in the East. This was right at the initial phase of the interest in ammonium perchlorate.

Q. Did you become involved in any way in pursuing the subject of the demand for ammonium perchlorate?

A. Yes. While the plant at Portland, Oregon, would be the responsibility of Mr. Shanaman it was likely that if a plant were built in the East it would be the responsibility of the Industrial Division in the East, and hence my responsibility. Consequently on two occasions I believe I made trips with personnel from the Western Division to discuss the possibilities of ammonium perchlorate and the future of ammonium perchlorate with people in Washington.

Q. Was this with an eye to whether you as the Division Manager could recommend an ammonium perchlorate plant in the East or Southeast?

A. Yes. At this point if I could put together a project of ammonium perchlorate that looked reasonable, or a combination of the ammonium perchlorate and chlorate, certainly I was interested in doing so.

Q. You mentioned a combination of ammonium perchlorate and chlorate as a possibility.

Why did that seem to you a possibility that you [fol. 575] should pursue?

A. About one pound or a little over one pound of sodium chlorate is used in the production of one pound of ammonium perchlorate, so to the extent that you could sell ammonium perchlorate you were increasing the size of the plant that you needed to make sodium chlorate. Consequently this might be a base for obtaining a reasonable project for the Industrial Division.

Q. Were such objections as you had, did they show which of these two, the ammonium perchlorate or sodium chlorate, would be the more profitable?

A. Certainly we had not found anything in our studies that made sodium chlorate very profitable, so consequently if the combination was to be profitable ammonium perchlorate was going to have to carry more than its share of the profit responsibility.

Q. Mr. Land, I show you Plaintiff's Exhibit 122, a memorandum of Mr. Tuttle, of a meeting that you, among others, "L-14," attended April 21, 1958. He says there in regard to an ammonium perchlorate and other Pennsalt high energy endeavor the following was agreed upon,

the primary objective for going into perchlorates at this time is to facilitate the justification for chlorate manufacture in the South.

Is the chlorate manufacture in there a reference to [fol. 576] sodium chlorate?

A. Yes, it is.

Q. Does that accurately summarize the views entertained by the group at that meeting on April 22, 1958, so far as the reason for the interest of ammonium perchlorate?

A. In my opinion it does.

Q. Incidentally, who is D-11?

A. Mr. Drake.

Q. Did you subsequently, in the fall of 1958, give further consideration in the management group of Pennsalt to either sodium chlorate plant in the Southeast or to a sodium chlorate-ammonium chlorate combined plant, but still with Pennsalt alone involved? In that connection I show you Plaintiff's Exhibits 139, 141 and 142.

A. Yes. As Exhibit 139 shows, Mr. Drake asked us to determine where we are today and where do we go from here and when. This was prompted by the fact that at this time, September 26, 1958, we had completed the installation of the ammonium perchlorate pilot plant at Portland. The estimated use figures for ammonium perchlorate by the military were fabulous. Consequently, it was timely to see what part Pennsalt should plan in the ammonium perchlorate picture in the country.

Q. PX-141, notes of a meeting in October, 1958, appar- [fol. 577] ently of several days, concludes with an item, "Southern chlorate plant not discussed or included in the program at this time. Shanaman, Land, and LaLande, are to review October 27."

PX-142 suggests that you and Mr. Shanaman should get together and conclude what if anything we should do about chlorates in the Southeast.

Did you have any discussion of sodium chlorate, disconnected entirely from perchlorates at this time?

A. I don't believe there was any discussion in 1958 of a sodium chlorate plant by itself, and I believe these references of chlorate all refer to a combined chlorate and ammonium perchlorate plant.

Q. Did you and others with you then come to grips with the subject of a sodium chlorate-ammonium perchlorate plant for Pennsalt alone in the late fall of 1958? In that connection I show you a series of documents, which are PX-143, PX-146, a memorandum from Mr. Eastman to Mr. Sloan dated November 11, 1958, which I will ask the reporter to mark for identification as Defendants' Exhibit No. 1.

(Memorandum dated November 11, 1958, was marked for identification Defendants' Exhibit No. 1.)

By Mr. De Lone:

Q. I also show you PX-148, PX-149, PX-153 and PX-154. [fol. 578] I think they are all in the package which you now have before you, Mr. Land, is that correct?

A. Yes, I have them.

Q. That is a number of documents, and I want you to take your time to refresh your recollection to the extent that you need to from those documents and then just tell the court in summary form what it was that transpired within Pennsalt in this period of late fall 1958 with reference to its consideration of a sodium chlorate-ammonium perchlorate plant in the East or Southeast?

A. Exhibit PX-143 is the first of a series of meetings held on November 3, and the purpose for this meeting was really to set the stage for the meeting that is recorded—I beg your pardon, the November 3 meeting is the second meeting. The first meeting was October 22. The meeting on October 22 really set the stage for the meeting of November 3.

Q. The October 22 meeting is dealt with in PX-143?

A. Correct.

Q. And the November 3 meeting is dealt with in PX-146?

A. Yes.

Q. If you would try, when you go through these, when you refer to a document to indicate the exhibit number, it will help.

The Court: Where do you find the October 22 date? [fol. 579] Mr. De Lone: It is October 27, your Honor. I guess that was a slip of the tongue on the part of both of us.

The Court: Thank you.

The Witness: PX-146, which is the record of the November 3 meeting, records the general discussion and conclusions reached at this meeting to consider a joint chlorate and perchlorate plant by Pennsalt alone. I believe it shows on page 3 the action and timing agreed upon. It shows that the Western Division will initiate an appropriation request to expand its Portland plant, and it shows as item 2 that Mr. Drake would apprise the board of directors of this program. It goes on in item 3 to show what action is to be taken following that mentioned previously.

The exhibit that you have shown me as Plaintiff's Exhibit 153 represents the initial work done in connection with item 3, subparagraph (a).

By Mr. De Lone:

Q. Subparagraph (a) is at the bottom of page 3 of Plaintiff's Exhibit 146?

A. Correct. The first action to be taken after the Western Division proceeds to expand its plant, or to prepare an appropriation request, and Mr. Drake talks with the board of directors, is for Central Engineering to prepare an appropriation report for this plant.

[fol. 580] In the preparation of the appropriation request, as I have said before, we follow the procedure of essentially completing our engineering, transferring back to a division manager for his responsibility, so that he in turn can present it to the management committee and to Mr. Drake for presentation to the board of directors.

Before item A can be completed, it is necessary for the scope of the project to be delineated in sufficient degree so that the Engineering Department can prepare their estimates.

Mr. Tryson's letter to Mr. Woodard, shown as Plaintiff's Exhibit 153, is an engineering study which was given to me as Division Manager, which was to be used as the basis for setting the scope of the project, which would let them proceed with their final engineering. Actually we never got beyond this stage since, as Division Manager, I could not accept the figures as shown in this report.

[fol. 581] Q. When you say "this report", which do you mean?

A. Plaintiff's Exhibit 153. Due almost entirely to the fact that while the overall return shown in the report for a combined chlorate-ammonium perchlorate plant was perhaps sufficient to meet Pennsalt standards, the bulk of the weight, as far as profit potential, was shown in ammonium perchlorate.

By January of 1959 ammonium perchlorate had lost some of its glamor. We had been subjected to many fabulous estimates by all sorts of people in the military as to what the demands would be. I call your attention to DX-1, which records on November 11, 1958, a telephone call from Mr. Errol Karr, who was heading the sales program of ammonium perchlorate for the Western Division, reporting to us that there is a possibility that double accounting exists in the several estimates of future demand for ammonium perchlorate obtained from the rocket engine manufacturers. Consequently, we were using figures that were perhaps twice as great as they were going to materialize.

Also we had the problem inherent in all chemicals of this type, and being sold ostensibly to the Government, we had the problem that they might be subject to renegotiation. If they were subject to renegotiation, this would take a good deal of the profitability, as forecasted in the engineering statistics or reports, out of it.

[fol. 582] We also had the possibility that while the ammonium perchlorate—and I believe at this time it was being used ostensibly for the Minuteman, which you will recall is an intercontinental ballistics missile loaded aboard a train in constant motion across the country—that while there would be a substantial demand for ammonium perchlorate to fit this system, unless they were used there would be no repeat business for this particular missile.

The other use was for the Polaris, which is the missile that goes aboard submarines. While I don't know how many there are, the amount of material used to charge the missiles that go aboard the submarines after the test program is over and they become operational, you could find that ammonium perchlorate did not have the service length of time necessary to warrant an investment based primarily upon the return of ammonium perchlorate.

Now, while the figures had lost some of their glamor in this period, they certainly hadn't lost all of it to the extent

that Pennsalt was willing to retract from the field. We had a pilot plant at Portland, Oregon, and I belive at this time we went forward to expand our operation at Portland to 2,000 tons per year, which also looked like a reasonable participation for Pennsalt in the ammonium perchlorate market.

Consequently, as the Division Manager I could not again [fol. 583] find a project upon which I was willing to recommend to the management of Pennsalt for consideration of it as a project for the company.

Q. Mr. Land, I call your attention in PX 146 to the item you previously referred to, Item 3 at the bottom of page 3, "Mr. Drake will make final decision to authorize action and expenditures for Central Engineering Department immediately to design and engineer."

What is the expenditure we are talking about when we talk about designing and engineering a plant of this size? Is that the same expenditure that is indicated in paragraph A-6 on the first page?

A. $200,000.

Q. So that before this could get to the stage of being an appropriation request, that much engineering would have to go into it, do I correctly understand that?

A. It is entirely possible that it would be that high, that much money, and we would not spend moneys of this magnitude which would have to be approved by Mr. Drake, unless the scope of the project could be defined and it could be put together as a recommended appropriation for the Division.

Q. The next item after that A is B on page 4, which says, "Industrial Division immediately to plan, organize and undertake entry in the southern and eastern pulp and paper markets. The objectives will be the commercial sale [fol. 584] of product beginning in January, 19[illegible]."

Was that your responsibility as head of the Industrial Division?

A. Yes, sir.

Q. Did you do it?

A. I did not.

Q. Why not?

A. I would not do this phase of the program until Item A was completed, and I had a project that I knew was at

least going to be considered by the company as a project, and then I would only do A in a preliminary fashion until I knew we were going to go ahead with a combined project for Pennsalt.

Q. Was it decided at the meeting of November 11, 1958 that you were going to go ahead with the combined project, or that you weren't, or was it left open?

A. No decision was made in the meeting of November 11, 1958, other than to proceed with the steps we have just been talking about.

Q. I'm sorry, I have referred to that misleadingly as the meeting of November 11th. The meeting was the 3rd. The memorandum about it, PX 146, was November 11th. We are both talking about the same thing, I take it?

A. That is correct.

[fol. 585] Q. I call your attention to PX148, which is included in the list that I have given you. Under "Southern Chlorate Plant," it says: "Still under study. Progress report indicate action may depend on how much we are willing to gamble on future markets."

A. This minute, of coure, was made prior to the time that I had had a chance to review the figures with Central Engineering. So certainly at this state the project was still under study.

Q. Although that is labeled Southern Chlorate Plant, the second paragraph of that minute says "for the perchlorate part of the project." We are not talking about sodium chlorate alone, is that right?

A. I am sure that refers to a combined sodium chlorate-ammonium perchlorate plant.

Mr. De Lone: I will ask the Reporter to mark for identification as Defendants' Exhibit 2, a three-page document, the first page of which is a memorandum from Mr. Staples to Mr. Land, dated August 15, 1960, and the next two pages of which are a letter from Perkins McGuire, Assistant Secretary of Defense, to Mr. Karr.

(Three-page document was marked for identification, Defendants' Exhibit No. 2.)

[fol. 586] By Mr. De Lone:

Q. Mr. Land, in the course of your previous testimony you made reference to—I don't know what term you used—I think "glowing description" of the demands predicted by the government with reference to ammonium perchlorate. I show you Defendants' Exhibit 2, the memorandum from Mr. Staples to you enclosing a letter of the Department of Defense, which was apparently received in August of 1960. Does this as of that time indicate as definitively as you can obtain from any official soure, the then status of the demand for ammonium perchlorate?

A. Yes, sir. By August 15, 1960, I was Group Vice-President in Tacoma and responsible for the sale of ammonium perchlorate from the Portland, Oregon, facility. We were not having a great deal of success in moving the output of that plant, and it was a bit discouraging to have from Mr. Perkins McGuire, Assistant Secretary of Defense, the statement that it probably would be 1964 before their need for ammonium perchlorate exceeded the ability of the present producers to supply it, and then perhaps only on a temporary basis. He is talking in here about the possibility of stockpiling some material against that short-term need in 1964.

Obviously this was a bit discouraging to us since we had by this time built a plant at Portland, Oregon, and put it [fol. 587] into operation.

Q. What was the capacity of the ammonium perchlorate plant which you built in Portland, Oregon?

A. Two thousand tons per year.

Q. That was commenced about February, 1959, was it? In that connection I call your attention to Plaintiff's Exhibit 155, which is before you. That is the press release announcing it.

A. I believe that is the time that the authorization was made to commence building the plant. I do not believe it was ready to produce until later in the year 1959.

Q. I think it has been stated, and indeed stipulated, that the plant began production in October, 1959. That was prior, in any avent, to the date of this letter from Mr. McGuire?

Mr. Freed: Your Honor, I believe that on last Thursday we adopted a procedure under which counsel for the defense would identify stipulations or other matters referred to in order to clarify the record.

Mr. De Lone: I am informed, Mr. Freed, that the item is in an answer to interrogatories which has been offered in evidence by the Government. I will identify the precise one as soon as you want to. I do recall that it is in the record. I apologize for not having the precise reference.

Mr. Freed, do you want me to find that for you before we [fol. 588] go on?

Mr. Freed: I believe you referred to a stipulation. I don't believe there is any stipulation.

Mr. De Lone: I think I am wrong. I believe now it is in an answer to interrogatories which has been offered in evidence by the Government.

Mr. Freed: Would the Reporter read back Mr. DeLone's statement?

(The Reporter read the question asked by Mr. DeLone as follows:

> "Question: I think it has been stated, and indeed stipulated, that the plant began production in October, 1959. That was prior, in any event, to the date of this letter from Mr. McGuire?")

[fol. 589] Mr. De Lone: I am sorry. I am in error, Mr. Freed. It was not a stipulation, it is Plaintiff's Exhibit 390, which is Pennsalt's answer to interrogatories, Set 5, answer Number 83.

By Mr. De Lone:

Q. Mr. Land, calling your attention now to the period in the latter part of the year 1959, and showing you documents PX-172, 173, and 174, will you tell us, as you recall it, what occurred at that time to bring about further consideration of the subject of chlorates in the east so far as you were concerned?

A. Yes. By the end of 1959 the amount of material available at Portland had been materially reduced, in fact Mr.

Shanaman was telling me he would not be able to supply sodium chlorate for the customers that we were supplying in the east. He was also questioning whether or not we should continue the introductory program with Olin Mathieson unless we had serious intentions of going ahead with the joint project; and, consequently, this line of thought prompted Mr. Drake to ask us to get together again to see whether or not Pennsalt had an interest in sodium chlorate-ammonium perchlorate as a project.

In preparation for this discussion or meeting I wrote a [fol. 590] letter of December 30 to Mr. Drake, which is Plaintiff's Exhibit 174.

Q. What eventuated following this consideration reflected in Plaintiff's Exhibits 172, 173, and 174?

A. Actually the discussion that we had at this time certainly prompted us to either go forward with our joint venture with Olin Mathieson, or, indeed, as I suggest in my memorandum, stop the introductory sales program to them since Mr. Shanaman says he can sell it all at Portland, Oregon.

Shoraly after the end of December, and I believe it was early in January of 1960, I talked with Mr. Block concerning a meeting between him and Mr. Drake to discuss the possibility of a joint venture with Olin Mathieson.

Q. In your discussions with Mr. Drake or Mr. Shanaman which were precipitated by Mr. Drake's memorandum of November 17, 1959, if you had such discussions, did you discuss or consider a sodium chlorate-ammonium perchlorate project for Pennsalt in the east by itself, or singly with its own plant?

A. At the time or this point I could not find a suitable project for Pennsalt, and I am sure I did not recommend such a project, nor can I recall discussing it.

Q. Am I correct in understanding the focus of the dis- [fol. 591] cussion was the problem of whether there would be continued sales of sodium chlorate produced in the west to Olin, or what was going to happen so far as sodium chlorate was concerned?

A. "What was the purpose of these sales?" "Why should they be continued?"

Q. Subsequent to the—You said you had a telephone call in early January from Mr. Block of Olin?

A. That is correct.

Q. You talked with Mr. Block?

A. Yes.

Q. For what purpose? What was the conversation, that you remember?

A. I am not able to recall exactly what started this series of conversations. What I do remember was that a meeting had been proposed, I belive by Mr. Block, or discussions with Mr. Drake in the early part of January and Mr. Drake——

Here again I think it was because of complication of a board meeting early in January.

—asked me if I would call Mr. Block, and suggest that I substitute for him and that I meet him in Baltimore or New York at his convenience to discuss the possibility of a joint operation. I called Mr. Block.

[fol. 592] Q. When you say "joint operation," will you clarify it? We have got two: one is Olin Mathieson and Pennsalt doing something together, and another is Pennsalt doing a plant which makes two products, sodium chlorate and ammonium perchlorate.

A. Discussions with Mr. Block were obviously a joint arrangement between Olin Mathieson and Pennsalt.

My conversation with Mr. Block was quite brief. He mentioned to me that he felt that a meeting would be unproductive unless Mr. Drake were present since Mr. Drake would have to make the decision as to what Pennsalt did; and he felt that for that reason we should not get together at that time but to defer it until a later date in January when Mr. Drake was available.

I determined that such a date was, I believe, the third week in January and arranged with Mr. Block and Mr. Drake to meet.

Q. Did you yourself attend a meeting in the offices of Olin Mathieson in New York on January 21, 1960, and in this connection I show you Plaintiff's Exhibit 186.

A. I attended a meeting which was held January 21, 1960.

Q. Will you read the memorandum which I have shown you from Mr. Clem, and tell us if that reflects as accurately [fol. 593] as you can remember the substance of what transpired at the meeting?

A. It does.

Q. When was it, Mr. Land, that you were transferred or when you physically moved from the east coast to the west coast with your new responsibilities? It started sometime in 1960?

A. About January 15, I knew I was to be transferred to the west coast; and I believe my first actual time on the west coast was March 19, 1960. But by the date of this memorandum, Plaintiff's Exhibit 186, I know I was to be transfered to the west coast.

Q. Did you participate in any further discussions following this meeting of January 21, 1960, with reference to the development of a letter of intent concerning Penn-Olin?

A. I had nothing to do with Penn-Olin since the date of this meeting.

Q. During the entire period from 1955 to 1960 when you were the manager of Pennsalt's Industrial Division in the east did your division ever present an appropriation request for the construction of a sodium chlorate plant at any location east of the Rocky Mountains?

A. We did not, nor did we have a plant suitable for consideration, final consideration, in the division.

[fol. 594] Q. Did you ever present an appropriation request for an ammonium perchlorate plant east of the Rockies in the same period?

A. We did not.

Q. What about a request for an ammonium perchlorate-sodium chlorate combined plant to be built by Pennsalt alone?

A. We did not.

Q. You never presented an appropriation request. Did you ever recommend that any of the projects, those three I have just referred to, should be included in the company's program for growth?

A. We had no recommendation.

Q. You had none. Did you make any?

A. We made no recommendation in this direction.

Q. Were any such projects ever included in the company's program for growth?

A. They were not.

Mr. De Lone: No further questions.

Mr. Freed: I wonder if we might recess for lunch at this time?

The Court: Recess until 2:00.

(At this point the trial was recessed, to reconvene at 2:00 p.m. the same date.)

[fol. 595] 2:00 o'clock p.m., the same day.

PRESENT:

As before noted.

Mr. Freed: Your Honor, it was the understanding of Government counsel that the documents which were introduced or which were discussed by the witness this morning were going to be maintained in the form in which they were submitted and left on the desk, but apparently we had a misunderstanding with the defense counsel.

If we could have your indulgence for a few minutes we would pull those documents.

The Court: How much time do you want?

Mr. Freed: Probably five minutes.

(At this point a short recess was taken.)

HUGH C. LAND, resumed.

Cross-examination.

By Mr. Freed:

Q. Mr. Land, in your direct testimony this morning I believe you stated that some of the sales which Pennsalt [fol. 596] has made in the East since 1955 were made as a favor to the customer.

Did you mean by this that Pennsalt has made such sales for charitable purposes, or as a gift?

A. No.

Q. Can you tell us what you did mean when you talked of sales as a favor?

A. Obviously "sales as a favor" is a poor choice of words. Procter & Gamble had their own equipment which

they wanted to put into service for the shipment of sodium chlorate to Foley, Florida. This requires a substantial amount of freight equalization for Pennsalt. We then considered doing this because of our relationship with Procter & Gamble over the years. We considered their request to do this job.

Q. If I understand you correctly the sales which have been made by Pennsalt to Procter & Gamble at Foley, Florida have been made in the exercise of Pennsalt's judgment for sound business reasons. Is that correct?

A. That is correct.

Q. In furtherance of Pennsalt's over-all effort to secure profit and return to the shareholders?

A. That is very true.

Q. I believe you also testified this morning that as of now Pennsalt could dispose of all its sodium chlorate capacity, [fol. 597] production at capacity, in the 11 western states. Is that what you testified to?

The Court: Before you get on that, was the testimony on direct examination to which you are cross-examining or your cross-examination is directed in a general way, and as to which you—this is a rather specific response to Foley, Florida. Is that the only testimony covered by this customer favor attitude?

It was my recollection, and correct me if I am wrong, that it also covered the Michigan shipment, and possibly some other Eastern shipments, but I could be wrong about it.

The Witness: I believe I was referring under "customer favor," to Foley, Florida, P&G.

By Mr. Freed:

Q. Could you tell us whether any of the sales which Pennsalt has made in the East of sodium chlorate, from the time it first began to ship sodium chlorate to the East until today, have ever been made for purposes other than in furtherance of Pennsalt's attempts to secure a profit and return a favorable return to its shareholders?

A. I am sure there are no other reasons.

Mr. Freed: Would the reporter read back the question with respect to sales in the 11 western states?

[fol. 598] (The reporter read the question as follows:)

"Q. I believe you also testified this morning that as of now Pennsalt could dispose of all its sodium chlorate capacity, production at capacity, in the 11 western states. Is that what you testified to?"

By the Court:

Q. Again, before you get to that, I want to see if I understand your testimony about these Eastern shipments, Mr. Land.

I suppose that if you sold, theoretically this is, at a loss every time you shipped East to very good customers it might be a sale in the interest of over-all profitable operation?

A. That is true.

Q. What I want to get at is what the fact is.

Were you selling at a loss, or were you selling at profit which would be less than you would normally expect to receive in the interest of developing good will for other profits, or were all of your sales to the East standing alone, that is sales of sodium chlorate, on a profitable basis, or is that a question that is too general for you to answer?

A. No. I think you can say that generally the sales of sodium chlorate to the East from Portland were not sales at a loss. However, they were less profitable sales than [fol. 599] could have been made from Portland into the logical selling area from that plant, the nominal 11 western states.

As we expand our plant at Portland, and it is expanded in increment, you have during some periods tonnage of production which you can move further than your normal marketing area. Under these conditions you attempt to sell them wherever you can sell sodium chlorate.

Q. In a sense it is distress production?

A. Incremental production. Yes.

So that now Proctor & Gamble had a little different flavor in that they were big customers of ours in the East. They had said to us, We would like to have this shipment into Foley, Florida," and we agreed to fill their car.

I might add this is the only customer's car that we filled in the United States, the rest of the delivery equipment is ours. It is a little unusual only in that context.

By Mr. Freed:

Q. Mr. Land, you have just referred to the sales to the pulp and paper customer known as Buckeye down in Florida. You stated that that is the only customer which furnishes its own car, is that correct?

A. As far as Pennsalt and the West is concerned, that is correct.

[fol. 600] Q. With reference to your sales to the two other pulp and paper companies in the East to whom sales were made, according to your testimony this morning, namely, Union Bag Camp and Gulf States Paper Company, in whose car were Pennsalt's shipments of sodium chlorate from Portland, Oregon, to those Eastern points made?

A. Made in Pennsalt's delivery equipment.

By the Court:

Q. Were they bulk sales?

A. They were bulk sales.

Q. Union Bag-Camp, was that a shipment into Virginia?

A. I'm not just sure. Where was it—Virginia?

Q. That was my recollection of your testimony, but again I may be confusing it with something else. How about Gulf States?

A. Yes, Gulf States is the other paper mill. I think counsel read the state as well as the tonnage.

Mr. Freed: Your Honor, in Plaintiff's Exhibit 274, which is a Sodium Chlorate Market Appraisal and Penn-Olin Marketing Projection, there is an appendix at page 15 which lists sodium chlorate customers, and Union Bag-Camp Paper Corporation is listed as being located at Franklin, Virginia.

By Mr. Freed:

Q. And Gulf States Paper Corporation shipments were [fol. 601] made to its plant at Demopolis, Alabama, is that correct, sir?

A. Yes.

Q. You testified, I believe, that at least with reference to the Union Bag sale, that that sale was made by your western sales manager, Mr. Shanaman?

A. I believe he is the contacter.

Q. And he secured that as a personal favor?

A. That's correct.

Q. In other words, this was another sale made in furtherance of Pennsalt's over-all marketing activities in an effort to dispose of its sodium chlorate?

A. Correct.

Q. Was this an effort to dispose of the sodium chlorate at a loss? Do you know that, sir?

A. Not at a loss, no, sir.

Q. Returning now to the question of Pennsalt's ability at the present time to dispose of all of its sodium chlorate production on the West Coast, is it your testimony that as of the moment Pennsalt is able to sell the full production of its plant, operating at capacity, in the 11 western states?

A. Mr. Freed, I think the question was worded better the first time. You left out the word "capacity" this time, and this makes a difference in the answer. I am not attempting to hedge.

[fol. 602] We can sell the capacity of our Portland, Oregon, plant in the 11 western states, or the geographical area surrounding it. You should include the Chipman shipments which were just outside the 11 western states. And I am differentiating here between capacity of the plant and maximum production. We can operate at above capacity, as it is used in our industry, although you do it at the sacrifice of economics in your operation.

The Court: Your testimony is that you have a market where you could dispose of your capacity but not the full production?

The Witness: That is correct. Your capacity is a rated figure in chemical plants where optimum yields are obtained from its process. You can run at what we call 110% of capacity and you do so at the sacrifice of operating economy. So if you have a period where you need additional production you can run for short periods of time at above capacity of operation.

The question I answered this morning was, could I sell the capacity of Portland, Oregon in the 11 western states, or its environs, the natural marketing area from Portland, and I believe the correct answer is yes.

By Mr. Freed:

Q. Then in referring to capacity, in response to Mr. [fol. 603] DeLone's question this morning, you were referring solely to the rated capacity of your plant, is that correct?

A. That is correct.

Q. What is that capacity?

A. It is about 15,300 tons per year.

By the Court:

Q. What can you produce when you are stretching it?

A. The maximum is about 17,000 tons. There is a differential there of about 1700 or 2,000 tons.

Q. In the normal course of a very busy operating year, what percentage of the time would you exceed your rated capacity, or can you exceed your rated capacity with reasonable safety?

A. Your problem of operating at rated capacity is one of supply to your customers. We have a general policy within Pennsalt that at any time a process runs at more than 95% of capacity you should immediately commence plans to expand it, because if you run at above rated capacity and you have a demand in your area that you can't supply, then you are not regarded as a reliable supplier. So you have a danger of running at rated capacity because it impairs your ability to produce economically.

Q. I don't think you quite answered my question. I'll asked the reporter to read it.

(The reporter read the last question.)

[fol. 604] A. I can't give you a precise answer. However, in sodium chlorate you can run at 10 or 15% above capacity for a period of four or five months, without danger.

Q. That is, without physical damage to your operation, but without the economies in the cost of production which otherwise you would experience?

A. You would have some physical damage at running at this rate of operation, and this is in terms of anode life. You would have to replace the anodes faster. The containers would have to be replaced faster. But in the op-

erating life, these elements are all replaced at some point in time. So you are accelerating the time that they would have to be replaced.

Q. How about the cost of production where you exceed your rated capacity?

A. The cost increases.

By Mr. Freed?

Q. Do your costs increase to the point where it is against the best interests of Pennsalt to produce and sell above its rated capacity?

A. At some point, and it is very difficult to say just where that point is.

Q. Has that point been reached up to the present time?

A. I don't believe so.

[fol. 605] Q. Then all of the sales which Pennsalt has made from the time its Portland, Oregon, plant commenced production until the present time have been production for sales at a profit and in the best interests of Pennsalt's business, is that correct?

A. You are asking me to comment upon a 20-year period, and it would be very difficult for me to do.

Q. If we confine it then to the year 1956, would that statement be true?

A. Again I perhaps can only comment upon the year 1960, from my own personal knowledge, Mr. Freed.

Q. And with reference to that year?

A. I would say the answer is yes.

Q. Are you familiar, Mr. Land, with the extent to which Pennsalt has in fact operated above or below its rated capacity within the past five years?

A. No, not in any detail.

Mr. Freed: I would like to read into the record at this point the data stipulated to by the parties contained in Plaintiff's Exhibit 376, page 4, which is entitled, "Sodium Chlorate Data Table No. 4," and in the column headed "Production" there are figures given for the production by Pennsalt at Portland, Oregon as a percentage of the capacity of Pennsalt's plant, and the figures are as follows——

[fol. 606] Mr. De Lone: Is this for the purpose of some

further examination of this witness? If not, I object to it. It is already in the record.

The Court: Address your observation to the court.

Mr. De Lone: I object to reading this into the record. If it is an exhibit it has already been offered by the Government.

The Court: Is that a preface to a question?

Mr. Freed: Yes, it is.

Mr. De Lone: I withdraw my objection.

By Mr. Freed:

Q. In the year 1957 Pennsalt's production was 107.4% of capacity; in the year 1958 Pennsalt's production at Portland, Oregon, was 106.9% of capacity; in 1959 it was 109.4% of capacity; and in 1960 it was 110.3% of capacity.

Can you tell us, Mr. Land, whether Pennsalt presently is continuing to operate its Portland, Oregon plant in excess of rated capacity?

A. Yes, we are.

The Court: I do not want to destroy the effectiveness by what I am going to ask, and you just retort that you would rather not answer the question at this moment if it does in any way impair your effectiveness, the effectiveness of your cross-examination.

[fol. 607] What is the significance you draw from that? It seems to me that obvious significance is that Pennsalt needed some additional capacity, or the obvious significance is that the rated capacity is not a very significant figure, and the productive capacity is more revealing.

Do you prefer not to answer that now?

Mr. Freed: No, your Honor. In the Government's view both of your Honor's observations are true.

By Mr. Freed:

Q. Mr. Land, in light of the testimony in the record concerning Pennsalt's production in excess of rated capacity, and in light of your further testimony with respect to Pennsalt's ability to sell its rated capacity production in the 11 western states, can you tell us whether Pennsalt contemplates abandoning sales outside of the 11 western states now that Penn-Olin has come into production?

A. The obvious one we will abandon is the sale to Penn-Olin, which is going on this year; other than that we do not intend to abandon.

Q. Does Pennsalt have any present intention of abandoning its sales to Buckeye at Foley, Florida?

A. I do not believe there is any present intention of abandoning it. I had considered abandoning it several years ago, but this is now the project of Jim McWhirter. If he con-
[fol. 608] tinues to sell Foley, Florida we will continue to supply him.

Q. Would your answer be the same with respect to the sales of Gulf States?

A. Yes.

Q. And with respect to sales to Union Bag would your answer be the same?

A. Yes.

Q. Pennsalt intends to continue, insofar as the customer will buy from it, continue to sell sodium chlorate to those Eastern pulp and paper customers?

A. When you say "continue," you mean as of tomorrow or next year?

Now there will come a point in time when I can sell this material within the normal marketing area, when I will then be in a position to say to our people who are marketing in the East, "We no longer have material available for you," and it becomes a decision as to whether or not we ship to the East at some sacrifice in profit.

Q. But until that point is reached your testimony is that you will continue to make sales wherever you are able to in order to dispose of the full possible production of your Pennsalt plant at Portland?

A. Mr. Freed, the division manager at Tacoma, Washington, has a responsibility for profit from operating the plant
[fol. 609] at Portland, Oregon, and consistent with that he will attempt to sell that material wherever he can.

Q. Does that answer apply to the sale of production in excess of rated capacity?

A. There is a limit at that point. How far we go beyond our logical market area depends upon the availability of material. As we increase above rated capacity our cost increases, so you find an economic balance on how far you move material.

Q. At least to the extent that production has taken place in excess of capacity to date have you reached the limit?

A. You mean up to 10% over rated capacity?

Q. Yes.

A. No. Depending upon how far we have to ship it and how much freight equalization we have to take.

Q. In other words, how much further than 110% of capacity you would wish to produce, and how much additional sales you might want to make outside of the 11 western states is the question which has not yet been presented to Pennsalt, you can only testify that the amount of production to date and the sales in the East to date have not exceeded your——

The Court: I am not sure I understand that question. Will you restate it?

[fol. 610] Mr. Freed: Perhaps I had better withdraw the question and start again.

By Mr. Freed:

Q. I believe you qualified your answer with respect to the sale of production up to Pennsalt's rated capacity in the 11 western states by saying that such sales would also include those outside the area to Chipman in Texas and Minnesota. Is that correct?

A. That is correct.

Q. Would such sales at rated capacity also include those to Manganese Chemicals in Minnesota?

A. No, it would not.

Q. Are there any sales outside of Texas and Minnesota, outside of the 11 western state area that Pennsalt would have to make in order to sell at the moment its rated capacity out of Portland?

A. No, it would not.

Q. Mr. Land, is it correct that in the year 1960 you indicated that you wished to have the right on behalf of Pennsalt's industrial division West to sell up to 3680 tons of sodium chlorate in the East? Do you recall that?

A. I do not remember the exact figure of 3680, but I know we gave a range between 1,000 and 3,000, so that is fairly close.

[fol. 611] Mr. De Lone: Is that an exhibit you are making reference to?

Mr. Freed: Yes, 234.

By Mr. Freed:

Q. Mr. Land, I have shown you a copy of Plaintiff's Exhibit 234, which is a memorandum to the file from Albert H. Clem, dated June 16, 1960.

Who is Mr. Clem?

A. Mr. Clem is the Vice President in charge of marketing for Pennsalt.

Q. Does Mr. Clem also occupy a position in Penn-Olin Chemical Company?

A. He may. I am not sure.

Q. Do you recall that Mr. Clem is one of the board members of Penn-Olin?

A. Yes, I belive that is correct.

Q. In this memorandum to the file Mr. Clem states as follows:

> "Hugh Land advised me from New York today that during the calendar year 1961 Portland can supply a minimum of 1680 tons of sodium chlorate to the southeast. This would be 1,000 tons plus 580 tons to Buckeye, plus 100 tons to Union Bag. Portland would like the right to supply 3680 tons which would be 3,000 tons [fol. 612] plus 580 tons to Buckeye, plus 100 tons to Union Bag."

Does that refresh your recollection with respect to the request you made concerning a right on the part of Pennsalt to furnish sodium chlorate for sale in the East?

A. Yes, I believe that is correct. And the only difference between my 1,000 and 3,000 and your 1680 and the 3680 is the additional material for Buckeye Cellulose and Union Bag. I had included them in my initial comment.

By the Court:

Q. Who would be the potential customer for the thousand tons?

A. This would be Penn-Olin. They wanted some material to use prior to the start up of the production facility at

Calvert, and the reason for the spread and the reason for some fluctuation in these figures, sometimes it is our inability to forecast just how much sodium chlorate we would use in the production of ammonium perchlorate at Portland. So we wanted to say here that if we could use the sodium chlorate and produce ammonium perchlorate then we wouldn't be obligated to supply it to Penn-Olin; if we had it available we wanted the right to supply it to them.

That is the essence of this thing.

Q. What stock brokers call a "put?"

[fol. 613] A. Yes.

By Mr. Freed:

Q. Mr. Land, do you recall in fact how much sodium chlorate your plant in Portland, Oregon supplied to the East in the year 1960?

A. Generally it is in the area of 2700 tons because we were not very successful in making ammonium perchlorate.

By the Court:

Q. You are talking about supplying 2700 tons?

A. In 1960.

Q. In 1960 that is. That is the year when the production was exceeding the rated capacity?

A. By 10%, sir.

Q. So that you elected as between the choice of keeping within rated capacity and exceeding rated capacity to exceed rated capacity and seek a market in the East?

A. To supply Penn-Olin, who was then building a plant and getting ready to operate, yes.

Q. Penn-Olin was actually selling sodium chlorate prior to the time when it became—its production facilities were ready for the purpose?

A. Yes. Penn-Olin sold during the entire year 1960 and only material supplied by us from Portland, Oregon, until their plant went into operation.

[fol. 614] The Court: What is that date of the letter of intention, 1959 or 1960?

Mr. Freed: 1960.

By the Court:

Q. You mean literally Penn-Olin was selling in 1960 before the letter of joint intention for the joint venture was entered into?

A. No, I do not.

By Mr. Freed:

Q. Mr. Land, I believe your last answer in response to a question from Government counsel was with respect to the sales by Pennsalt of sodium chlorate in the East in 1960, and your answer was that the total tonnage was in the 2,000 range?

A. I think it is 2,700 tons to Penn-Olin. I understood your question to be to Penn-Olin. It would be the addition of material for Buckeye Cellulose and Union Bag, in addition to that sold to Penn-Olin, in the neighborhood of 3,300 or 3,400 tons.

Q. I direct your attention, Mr. Land, to Plaintiff's Exhibit 414, entitled "General Stipulations, Set One", in which the table marked "Stipulation, Table No. 4" shows that in the year 1960 Pennsalt shipped on behalf of Olin 3,228 tons.

The Court: On behalf of Olin or Penn-Olin?

[fol. 615] Mr. Freed: The chart is headed on behalf of Olin.

By Mr. Freed:

Q. I wonder, sir, if you can explain to us the difference between the 2,000-plus tons which you have stated were sold to Penn-Olin and this 3,228 tons which are listed in Table 4?

A. I am sure Table 4 is correct. I would let it correct my testimony.

Q. Can you tell us, Mr. Land, whether the sales which are recorded in Table 4 of Plaintiff's Exhibit 414 are in fact sales made to Olin for resale by Penn-Olin?

A. I can only say that they are sales made to Olin Mathieson.

Q. Do you know how they fit in with your prior testimony of sales made by Pennsalt to Penn-Olin?

A. I must have been incorrect in my prior testimony. Let's rely upon the written record.

Q. Were they sales, as far as you know, made to Olin Mathieson as a consumer of sodium chlorate?

A. No. I am sure they were made to Olin Mathieson either as a part of the test program or to be used as the pre-entry of Penn-Olin into the market, and I can't be sure just when the transition was made. I should rely upon the written record.

[fol. 616] Q. In fact, then, the desire which you had to have the right to sell a large tonnage of sodium chlorate in the East, in the year 1960, was fulfilled to the extent at least of 3,200 tons?

Mr. De Lone: I object to the form of the question: "A large tonnage."

The Court: Are you objecting to the form of the question?

Mr. De Lone: I object to the characterizing.

The Court: All right. Restate the question, Mr. Freed, unless you insist on this particular form. If you do, I will hear you.

By Mr. Freed:

Q. Is it correct, sir, that the 3,200 tons sold by Pennsalt to or through Olin in the East, in the year 1960, were a measure of the extent to which you were successful in securing the right to sell your sodium chlorate in the East in that area?

A. It is.

Mr. Freed, may I have one question for a minute? The figure that I am talking to you about, which is in this document you handed me, Plaintiff's Exhibit 234, talks about the right for sales in 1961. It is in 1961 that I am talking about selling 3,680 tons. You have shown me on this exhibit fig-[fol. 617] ures for the year 1960. Perhaps I am being confused as to how they relate.

Q. Pardon me. I did not realize the difference. Can you tell us with respect to the year 1961 the extent to which Pennsalt has in fact made sales under its claimed right?

A. I think 2,700 tons would be more factual.

Q. Mr. Land, I believe you testified this morning that Pennsalt has one salesman in the southeast, is that correct?

A. In 1955 we had Bob Wurst at Atlanta.

Q. How about in the year 1961? How many salesmen does Pennsalt have in the Southeast?

A. I can't testify from my own knowledge in 1961. I can only say that Bob Wurst has been replaced by Mel Binns in the Atlanta office.

The Court: Are you talking about the number of salesmen for sodium chlorate, Mr. Freed, so there is no misunderstanding by the witness?

Mr. Freed: My question is directed to the number of salesmen for Industrial Chemicals in the Southeast.

By Mr. Freed:

Q. Is it correct that it is salesmen from the Industrial Chemicals Division East who sell whatever sodium chlorate there is to sell in the East?

A. That's correct, and the only difference it would make [fol. 618] between 1955 and 1961 is that in between those two periods we merged the Sharples Chemicals Division with the Industrial Chemicals Division, and to the extent that we sold chemicals for the rubber industry in the South there may be a rubber chemical salesman down there. I can't be sure whether he is serving the Southeast.

Q. When you speak of the Southeast, can you tell us which states you are referring to?

A. I am referring generally to Alabama, Mississippi—the area of Alabama, Mississippi, Georgia, Louisiana—this general area.

Q. Those four states?

A. In that general area. It would include Arkansas.

Q. Are you familiar, Mr. Land, with the definition of Southeastern States which Pennsalt has incorporated in its response to interrogatories in this case?

A. I don't remember it, if that is what you mean. I am sure I have seen it.

Q. I call your attention to Plaintiff's Exhibit 380, which includes interrogatory number 12, propounded by the Government, and the response thereto by Pennsalt, in which the Southeastern states are defined as Texas, Louisiana, Kentucky, Florida, Georgia, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Mississippi, Arkansas, Kansas, Missouri, Tennessee and Oklahoma. By letter [fol. 619] dated some time in late October, October 20, 1961, Pennsalt amended this definition of Southeast to delete half of Texas, Missouri and Kansas.

Now, addressing yourself to the Southeastern area as defined by your company, do you know how many salesmen the Industrial Chemicals Division has?

A. There is a salesman in Texas, so we would have to call him a half a man because he covers all of Texas, I guess. I believe then we would have two industrial salesmen.

Q. I take it Mr. Land that you are not familiar with Pennsalt's response to interrogatory 87, which requested a listing of Industrial Chemicals Division's sales force in the South?

A. I am not familiar with it. It was prepared in Philadelphia.

Q. I read to you now from Plaintiff's Exhibit 384, interrogatory 87, which states:

> "Pennsalt's sales force for the sale of Industrial Chemicals by the Pennsalt Industrial Chemicals Division East is as follows:
>
> "Atlanta, Georgia, office opened August, 1960, number of salesmen, 2, covering the states of North Carolina, Eastern Tennessee, South Carolina, Alabama, Georgia and Florida."

[fol. 620] Is that information correct, to the best of your knowledge?

A. It must be a rubber chemical salesman included in Atlanta, Georgia, to make up two. If it is, it is correct.

Q. Do you know for a fact that this includes a rubber chemical salesman?

A. I do not know that. I do know that in 1955 there was one.

Q. With reference to the Chicago office, the interrogatory states that there are five salesmen and that the territory of the Chicago office includes Eastern Kentucky. Do you have any information that would make that answer incorrect?

A. No, I think that is correct.

Q. With reference to the Philadelphia office of Pennsalt, the response by Pennsalt states that there are three salesmen working out of that office and that the states covered include Delaware, Maryland and Virginia, also Eastern Pennsylvania and Southern New Jersey. Do you have any information that would indicate that that information is incorrect?

A. I have none.

Q. There is also a sales office listed in this interrogatory [fol. 621] at St. Louis, Missouri, which has three salesmen. The states covered are Western Tennessee, Western Kentucky, Southern Illinois, Missouri, Arkansas, Mississippi, Louisiana, Kansas, Texas and Oklahoma. Do you have any information that would indicate that Pennsalt's response with respect to the St. Louis office is erroneous?

A. I have none.

Q. Finally, the interrogatory indicates that there are two salesmen of Pennsalt in its Pittsburgh office, which covers the states of West Virginia, Western Pennsylvania, and Eastern Ohio. Is that answer correct to the best of your knowledge?

A. That is correct.

Q. And in addition to all of the sales offices the interrogatory lists 7 people based in the Philadelphia home office of Pennsalt who are stated to have selling responsibilities in connection with the sale of industrial chemicals by Pennsalt's Industrial Chemicals Division East. These are people headed by Mr. Grogan. Is that information correct, to the best of your knowledge?

A. I believe that is correct.

Q. Mr. Land, I would like next to direct your attention to Plaintiff's Exhibit 66, which was shown to you this morning by Mr. De Lone. It is a memorandum dated March 8, [fol. 622] 1955 from Mr. A. S. Woodard to Mr. W. P. Drake.

A. Yes, sir.

Q. I believe your testimony this morning was that the cost estimates and return on investment figures shown in this memorandum were unfavorable in terms of Pennsalt's return on investment policy, is that correct?

A. That is correct.

Q. Directing your attention to the figures which relate to a 12,000-ton per year sodium chlorate plant in the East, the figures show, do they not, that Pennsalt could expect a return on investment between 10 and 15%. Is that correct?

A. That is correct.

Q. The investment listed on this cost study for a 12,000-ton plant would range between $3,560,000 and $4,773,000, is that correct?

A. That is correct.

Q. The return on investment at the 10% lower limit would indicate a profit per year to Pennsalt of $356,000 if the total cost of the plant were the lower figure of $3,560,000. Is that correct?

A. That is correct.

Q. And if the return on investment were as high as 15%, Pennsalt would show a profit on a 12,000-ton plant of $529,000, is that correct?

[fol. 623] A. Yes, sir.

Q. If on the other hand the plant cost the upper limit, according to this survey, of $4,773,000, it would indicate that Pennsalt could expect to receive a profit of between $477,300 and $715,950. Is that correct if my arithmetic of multiplying 10% and 15% is correct?

A. I assume it is.

Q. Then it is your testimony that the profit figures which I have multiplied out, between $350,000 per year and $715,000 per year were all within a range which was not suitable to Pennsalt in terms of its own return for investment policy, is that correct?

A. That is correct.

Q. In other words, these figures did show that Pennsalt could make a profit in the amounts that I have indicated but that that profit was not enough profit, is that correct?

A. That is correct.

Q. Mr. Land, two years after the cost estimates shown in Plaintiff's Exhibit 66, which is the March, 1955, document, new cost estimates were prepared and summarized in Plaintiff's Exhibit 82 which you have before you, dated March 12, 1957.

A. Yes.

Q. Is that correct?

A. That is right.

[fol. 624] Q. These estimates concerned plants of 15,000 and 20,000 ton capacity at Calvert City, Kentucky. Am I correct?

A. That is correct.

Q. Now, turning your attention to page 2 of Plaintiff's Exhibit 82, the net profit projected for a 15,000-ton Pennsalt plant at Calvert City would be $547,776 per year. Is that correct?

A. That is correct.

Q. That would represent a return on fixed investment of 13%, or on total investment of 11.4%. Is that correct?

A. That is correct.

Q. These figures were computed exclusively on the basis of an independent venture by Pennsalt. Is that right?

A. That is right.

Q. Directing your attention next to page 4 of Plaintiff's Exhibit 82, the data shown at top of page 4 is for a sodium chlorate plant of 20,000-ton capacity at Calvert City. Am I right?

A. You are right.

Q. And the net profit projected there is $850,716 per year. Is that correct?

A. That is correct.

Q. A profit in that amount would represent a return on total investment of 14.1%, and on fixed investment of 16.1%. Is that correct?

[fol. 625] A. That is correct.

By the Court:

Q. These figures are all before Federal income tax?

A. All before Federal income tax.

The Court: Plaintiff's Exhibit 82.

By Mr. Freed:

Q. Am I correct, Mr. Land, that following recipt of this report entitled, "Sodium Chlorate Plant in the East Report, Part 1," which is embodied in Plaintiff's Exhibit 82, the management of Pennsalt decided to proceed with a further study of the sodium chlorate market potential in the East? Is that correct?

A. That is correct.

Q. It was following this report and the figures contained in it that Arthur D. Little was hired to survey the market for sodium chlorate in the East. Is that right?

A. That is correct.

Q. At least as of March, 1957, the profit shown in Plaintiff's Exhibit 82 and the return on investment figures shown in Plaintiff's Exhibit 82 was not considered discouraging enough to cause Pennsalt to abandon interest in an independent sodium chlorate venture. Is that correct?

A. I don't believe that is correct. If the consideration [fol. 626] were the figures alone the project would have been dropped at this stage. The only reason for continuing was the nagging question raised by Mr. Drake earlier, "Why aren't we able to do this project if others can?"

It was in an interest of pursuing this further that we completed the market development work. If these were all the figures we were going to get from a sodium chlorate project I as a division manager could not recommend doing it because we have many projects to consider, we have a limited number of dollars that we can work with, and we have 110 years of history to pull along with the new project that we put into the market place, so that it takes a very careful selection of the project we do.

If these figures had been the only consideration the project would have been dropped right here.

Q. Why did Pennsalt proceed then?

A. If you will remember earlier Mr. Drake and Mr. Shanaman and myself had said, "Let's determine why we are not able to develop this project further," and a task force was set up. This was part one of the task force, and part one was developed solely to give us another look at the economics because it was felt perhaps these economics in themselves would discourage us, and it was at Mr. Shanaman's suggestion, if you will recall there is a letter from Mr. Shan- [fol. 627] aman that followed this report, where he took exception to the way the report was developed, where he said, "You haven't entered any new information. We would like to see the market aspect developed."

It was a result of that consideration rather than the fact that the figures look attractive, for indeed these figures did not look attractive to me.

Q. Mr. Land, at the time you proceeded with the study for report part 2, that was the first part of which is indicated in Plaintiff's Exhibit 82, did you proceed on the assumption that it might be possible for Pennsalt to proceed alone?

A. Certainly.

Q. Did you also proceed on the assumption that Pennsalt might proceed on a joint venture basis?

A. Let me state again if as Division Manager it is possible to put a project together on purely a Pennsalt basis we

would much have preferred to do it in this fashion. However, if we cannot or we find we cannot proceed in this way we would like to look for other ways to do the job.

Q. At this particular point was Pennsalt considering the alternatives of a lone venture or joint venture as possibilities?

Mr. De Lone: I object to the form of that question. Let us understand at what point you are referring to. Will [fol. 628] you fix it in some point of time?

Mr. Freed: Yes. The point of Plaintiff's Exhibit 82, March 12, 1957.

The Witness: I cannot speak for the company in all aspects, Mr. Freed. I can say from my part as manager of the Industrial Division in the East I was thinking of it in terms of a Pennsalt project. I cannot say there was no consideration within the company of a joint venture, but the main emphasis at this time was still as a Pennsalt project.

I would have had the opportunity to present it as a Pennsalt project had the figures come out where they should have.

By Mr. Freed:

Q. As you undertook the Arthur D. Little study which immediately followed Plaintiff's Exhibit 82, was that study undertaken solely for the purpose of determining whether Pennsalt could go ahead with a sodium chlorate plant in the East alone?

A. Solely for that purpose? I do not believe I can say that I know it was taken solely for that purpose, Mr. Freed; it was taken to follow up the charge given to the task force to determine why we are not able to justify a plant in the East.

Q. Mr. Land, did you have anything to do with negoti- [fol. 629] ating the contract with Arthur D. Little that was the prelude to the market survey that that organization performed for Pennsalt?

A. I did not.

Q. Are you aware of the fact that Pennsalt requested Arthur D. Little to report back to it on joint venture opportunities in sodium chlorate at the time the contract with Arthur D. Little was entered into?

A. I do not recall that I remember that precisely. I am not surprised.

The Court: Mr. Freed, we will take a ten-minute recess.

(At this point a short recess was taken.)

By Mr. Freed:

Q. Mr. Land, I would like to read to you from Plaintiff's Exhibit 90 which is a letter from Arthur D. Little Company to Mr. Russell W. Sloan of Pennsalt, dated May 8, 1957, at page 3. The letter states:

> "Following collection of data from these sources we will correlate and interpret the findings to provide recommendations on the most appropriate course of action for Pennsalt. We will not reveal your identity during the course of this work but will bear in mind [fol. 630] your interest in joint venture opportunities. If any such opportunities arise they will be brought to your attention promptly."

Addressing yourself to the letter as a whole I wonder whether you can recall for us anything concerning the instructions which your division gave to Arthur D. Little with regard to exploring joint venture opportunities?

Mr. De Lone: I object to that in light of the witness' previous answers that he had nothing to do with setting up the relationship with Arthur D. Little.

The Court: I will overrule the objection.

The Witness: The responsibility for arranging for the work with Arthur D. Little was done through the Technical Division, and their Market Research Department. This is a staff division reporting to the President and separated from the Industrial Division, which is an operating division. Consequently, I, as Division Manager, did not participate in the instructions that were given to Arthur D. Little who prepared the report.

By Mr. Freed:

Q. Then the instructions with respect to exploring joint venture opportunities came from someone other than you.

A. Yes.

Q. Mr. Land, I would like next to direct your attention

[fol. 631] to Plaintiff's Exhibit 99 shown to you this morning. This is the memorandum from Mr. Eastman to Mr. Sloan, dated November 18, 1957, covering a meeting which had been held by Pennsalt personnel on November 6, 1957.

I believe you testified this morning with reference to page 3, item 9(b)?

A. (b)?

Q. 9(b) on that page.

—that although L-14 is the designation in the company for Hugh C. Land, that you in fact did not explore the partnership idea with Olin.

A. That is correct.

Q. Is it correct that at no time prior to the end of 1950 or the beginning of 1960 when Penn-Olin negotiations commenced, that at no time subsequent to the time of Plaintiff's Exhibit 99 did you personally conduct any negotiations with Olin with respect to a joint venture?

A. That is correct.

Mr. De Lone: Might I have that question read?

The Court: Read the question and answer.

(The last question and answer were read by the reporter.)

[fol. 632] By Mr. Freed:

Q. I believe in this morning's testimony, Mr. Land, you gave your reasons for not following up Plaintiff's Exhibit 99 prior to the meeting which was held on December 5, 1957, and which is covered by Plaintiff's Exhibit 102, why you did not have any discussions with Olin. Do you recall your testimony in that respect?

A. I do. Would you like to have me repeat it?

Q. No, it is not necesary. Do you know whether anyone else from the Pennsalt organization between the dates of these two meetings approached or discussed with Olin the prospect of a joint venture?

A. I know that Mr. F. C. Shanaman had discussions with Olin Mathieson concerning the possibility of supplying 2,000 tons of material for an introductory market program. I do not know whether these conversations encompassed a joint venture idea.

Q. But in fact, the reasons which prompted you not to approach Olin between these two meetings were reasons personal to yourself, and the purport of your testimony was

not that these reasons governed Pennsalt personnel in their follow-up to the meeting reported in Plaintiff's Exhibit 99, is that correct?

[fol. 633] A. I don't understand your question.

Q. Perhaps it would be well for you to restate the reasons which prompted you not to carry out the recommendation on page 3 of Plaintiff's Exhibit 99 respecting exploration of the partnership idea with Olin.

A. As a division manager, I wished to determine if this project could be made a satisfactory project for the Industrial Division. Consequently, I had preliminary discussions with our sales people who by this time had had a chance to take a look at the Arthur D. Little report and our marketing division comment. I also wanted to talk with the engineering people who had prepared the estimates and who were under sub-item C going to revise their capital cost estimate, and I frankly had taken the time to do these two items to determine whether or not it would be a good project for the Division before getting around to talk with Olin Mathieson.

Now, as it happened, the December 5th meeting came so soon after this meeting was concluded that I did not have an opportunity to follow up on Item B. It was a secondary item in my mind.

Q. And in fact, between those two meetings Mr. Shanaman did discuss with Mr. Logan, of Olin Mathieson, the possible sale by Olin in the east of sodium chlorate from Pennsalt's western plant?

[fol. 634] A. That is my recollection.

Q. And those discussions were a prelude to the joint venture which finally came into being in 1960?

A. Yes, sir.

Q. I would like next, Mr. Land, to direct your attention to Plaintiff's Exhibit 100, a memorandum from Dr. LaLande to Mr. Drake, dated November 19, 1957, attached to which are some cost estimates for a sodium chlorate plant. Mr. Land, does this document represent the last set of cost estimates on a sodium chlorate plant prior to the December 5, 1957 meeting?

A. Well, it is certainly the last set that I had seen.

Q. Are the figures which are set forth in this document

those on which Pennsalt determined that it was unlikely that it would proceed itself?

A. Certainly they are the figures upon which I based my own judgment.

Q. To your knowledge, were there any other studies which dealt with capital requirements or return on investment, the two elements which are mentioned in Plaintiff's Exhibit 102, under Mr. Drake's first question. Are there any other studies which to your knowledge were available to the participants in the December 5, 1957 meeting recorded in Plaintiff's Exhibit 102?

[fol. 635] Mr. De Lone: I object to the form of that question unles by "other" you mean other than the specific ones states on PX 100. Have there ever been any other studies?

Mr. Freed: I am referring to any studies other than Plaintiff's Exhibit 100.

A. To my knowledge, there were no other studies.

Q. Directing your attention to Plaintiff's Exhibit 100, on the attached page which contains estimates is it a fact that the fixed investment required for the sodium chlorate plant there being considered was $6,320,000?

A. That is as reported.

Q. And the return on investment calculated in this study was 18.3 per cent, is that correct?

A. That is correct, on fixed investment.

Q. Right. And the return on fixed investment then would be 18.3 per cent times that $6 million figure, or $1,156,560?

A. On fixed investment, yes.

Q. That's correct?

A. That is correct, assuming your arithmetic is correct.

Q. Yes. With respect to total investment, the total investment indicated on the studies is $7,255,000, is that right?

A. That is correct.

[fol. 636] Q. And multiplying that by the 15.9 per cent return, the return to Pennsalt on this project would have been $1,153,545; would that be correct?

A. Assuming the arithmetic is correct.

Q. And it was on the basis of this computation of return on investment and dollars which would come back to Pennsalt that Pennsalt decided that the economics were not sufficiently satisfactory for it to proceed alone, is that correct?

A. That is correct.

Q. Then it was not a question of Pennsalt being unable to make a profit on the sodium chlorate plant, was it?

A. Make any profit at all?

Q. Right.

A. These figures show there is a nominal profit.

Q. The figures which we have given are considered by you to be nominal profit, is that correct?

A. Well, they are certainly considered not to be suitable ones for projects in Pennsalt's program for growth in 1957.

Q. Then it is a fact that the figures available to Pennsalt show that a return on investment in the range of $1,100,000 was available but that was not a sufficient amount for Pennsalt to proceed within the framework of its own return on [fol. 637] investment policy, is that correct?

A. A return on investment of 15.9 per cent on total investment would not be sufficient to let us take the gambles of the market to return the type of profit that we need for our shareholders.

Q. Mr. Land, I would next like to turn your attention to Plaintiff's Exhibit 111, shown to you this morning by Mr. De Lone. It is the memorandum to the file by Mr. Logan and dated February 4, 1958. I believe you testified that the account given here by Mr. Logan at the meeting in Philadelphia was correct but that as you interpreted it, it did not preclude Pennsalt from giving further consideration to a lone venture, is that correct?

A. I am sure Pennsalt would have considered a lone venture after this time, yes sir.

Q. And did Pennsalt in fact consider a lone venture after the date of Plaintiff's Exhibit 111?

A. I don't believe we did on sodium chlorate alone, if that is your question.

Q. Did Pennsalt consider a lone venture which would include the product, sodium chlorate, for production and sale in the east, following the date of Plaintiff's Exhibit 111?

A. Yes. We did consider a joint ammonium chlorate-sodium perchlorate venture for Pennsalt alone after this date.

Excuse me; you are correct. You make sodium chlorate [fol. 638] and you convert it to ammonium perchlorate. The answer should be sodium chlorate and ammonium perchlorate. That is the final product.

Q. Then it is correct that following Plaintiff's Exhibit 111, Pennsalt did not abandon the idea that it might be a producer and seller of sodium chlorate in the east alone?

A. I am sure we in the Industrial Division didn't abandon it.

Q. If you didn't abandon it, sir, can you tell us why you testified this morning that Pennsalt had no incentive to sell sodium chlorate in the east in the years 1958 and 1959?

A. Actually, as a result of our December 5th meeting we had made the decision that it was unlikely that Pennsalt would continue with a sodium chlorate project in the east on its own. At that same time the surplus material available from Portland, Oregon, was offered to Olin Mathieson for test sales work. Consequently, the direction was taken. So that at that point there was little reason for us to continue to push the sale of sodium chlorate because the supply had been committed for.

Q. Do I correctly understand you as testifying that Pennsalt had precluded itself from testing the market for sodium chlorate in the east by its arrangement with Olin?

A. Precluded? There was no reason for Pennsalt to test [fol. 639] the same market that Olin Mathieson was going to test with its 2,000 tons of sodium chlorate. We had reviewed the opportunities through our own sales people and we had the benefit of an Arthur D. Little report. There was no reason for us to be continuing to sample that market during the years 1958 and 1959.

Q. In other words, there was nothing additional that Pennsalt had to do in order to equip itself to carry out a lone venture if in fact in the studies which you testified it conducted after February 4, 1958 it was to decide to embark on a lone venture in the east, is that correct?

A. There were in fact many things we had to do if we were indeed to go ahead with a lone venture in sodium chlorate. We had enough knowledge about the market to make that decision. However, if the decision had been made there would have been a lot of work that we in the Division had to do to set up the type of selling organization necessary to handle the sale to this market.

Q. But at least to the extent that setting up a selling organization to sell sodium chlorate in the east was concerned,

you had effectively precluded yourself from doing that by committing the tonnage to Olin, is that right?

A. Well, let me state it this way. Until we are sure that the Industrial Division is going to have a source of supply [fol. 640] in the east we had no reason, nor in fact was it desirable for our people to be out soliciting sodium chlorate sales. The fact is it would be at a disadvantage to us. So until we could get in our planing to the stage where we knew we were going ahead alone, we would certainly not take that step in the marketplace.

Q. Is it correct to conclude from what you have said that Pennsalt did not consider itself prejudiced in its ability to carry out a lone venture by the fact that it had committed tonnage from Portland to Olin?

A. I certainly felt we still had the ability to carry out a lone venture after the arrangement with Olin Mathieson had been made.

The Court: If the circumstances justified it?

The Witness: Yes, if the circumstances would justify it.

Mr. Freed: I wonder if I may have a five-minute recess at this point, your Honor?

The Court: All right.

(At this point a brief recess was taken.)

[fol. 641] By Mr. Freed:

Q. Mr. Land, do you recall testifying this morning with respect to the meeting of November 3, 1958, in which members of Pennsalt's management decided to take further steps in the direction of a lone venture by Pennsalt independently in the direction of a combined chlorate-perchlorate facility at Calvert City?

A. Yes.

Q. The results of that meeting were correctly summarized in Plaintiff's Exhibit 146. Is that right?

A. I don't believe the results are absolutely correctly recorded here. There is some dispute as to timing; there is some effort to correct this record.

So I do not want to testify that these are absolutely the correct minutes of the meeting.

Q. On page 4 of Plaintiff's Exhibit 146 there is a nota-

tion of a serious inconsistency in timing. Is that what you refer to?

A. This is a part of what I mean.

Q. What was the only other thing you said was wrong with these minutes?

A. Basically what I am referring to is this inconsistency in timing that is recorded here and also noted here.

[fol. 642] Q. When was it that the efforts which you and your colleagues undertook on November 3, 1958, again to explore an independent venture by Pennsalt in the east on sodium chlorate and its related product ammonium perchlorate? When was it that Pennsalt reversed this decision or the direction indicated in Plaintiff's Exhibit 146?

A. When was it in time?

Q. Yes.

A. It was sometime after the first of the year of 1959.

Q. Can you fix precisely the date on which that change in direction took place?

A. Mr. Freed, I spent about an hour and a half with you in Tacoma under deposition attempting to fix this date precisely. I couldn't then. I have had occasion to review the record since then and I can say to you now I still cannot pinpoint precisely the date at which this approach was dropped.

Q. Were the efforts which you made at the time of your deposition, sir, the best efforts which you believe yourself capable of making on the project of finding the date or the time period within which Pennsalt decided to drop an independent chlorate-perchlorate venture?

A. I have reviewed the file since our meeting in Tacoma for deposition, and I can find nothing that let's me pin-[fol. 643] point it any better than I was able to in deposition, Mr. Freed.

Q. Do you recall, Mr. Land, at the time of your deposition being shown the press release of February 10, 1959, which at that time was marked as Plaintiff's Land Exhibit 10?

A. Yes, I remember this exhibit.

Q. Do you remember testifying with respect to that document?

A. I remember saying that this date——

The Court: You need not review your testimony, but you remember testifying about it?

The Witness: Yes.

By Mr. Freed:

Q. I believe I misstated that. That is Plaintiff's Land Exhibit 8.

A. Correct.

Q. I would like to read to you from the transcript of your deposition, and it has been marked in evidence as Plaintiff's Exhibit 400. I read to you from page 153.

"Question: I ask you, sir, whether you can recall whether you had any participation in the preparation of this release or in the internal management discussions respecting the subject matter of the release? [fol. 644] "Answer: I don't recall having participated in the preparation of this release.

"Question: Do you recall, sir, having seen the release at the time it was issued?

"Answer: I am sure I would see each release when they are issued.

"Question: And can you recall if your recollection is refreshed by this release what the view of Pennsalt's management was at this time respecting ammonium perchlorate prospects?

"Answer: This would seem to indicate that the fading off that I am speaking about perhaps occurred later than the earlier January 10, and perhaps we would have to affix it now sometime between February 10 and June as a result of this document."

Do you recall that testimony?

A. I recall that testimony.

Q. Was the testimony which you gave this morning intended to retract any of the testimony from your deposition?

The Court: You mean this testimony you just called his attention to?

Mr. Freed: That is correct.

[fol. 645] By Mr. Freed:

Q. Was any testimony which you have given in court today designed to——

The Court: I think that question is a little too broad. I think you ought to direct the witness' attention to the testimony he gave this morning and ask him specifically with reference to it and with reference to deposition testimony.

By Mr. Freed:

Q. With respect to the testimony which you have given about the date on which Pennsalt's evaluation of ammonium perchlorate prospects began to dim?

Can you tell us whether there is any date earlier than the date of the press release you now hold in your hand which could be fixed as the time when Pennsalt changed its mind about ammonium perchlorate?

A. I believe this morning I mentioned a letter that was received in November, at which time there was some question as to whether or not there were double figures used in preparing our estimates.

If you infer that to mean a damping off of Pennsalt's enthusiasm I am sure we recognized that there isn't any precise way that you can pinpoint as an ethereal thing as this. That certainly contributed to our evaluation [fol. 646] but the very fact that on February 10, 1959, we were willing to invest approximately $2 million in ammonium perchlorate facilities would seem to indicate that at this time Pennsalt had confidence in this venture.

Q. Then at least as of the date of this press release is it correct that Pennsalt still considered the ammonium perchlorate-sodium chlorate project in the east as a good possibility by itself?

A. No. I think that is perhaps an incorrect inference because, as I have testified, the report from Central Engineering, which I believe was in January, in fact it is January 20 in Plaintiff's Exhibit 153, was not sufficiently attractive to let me as a division manager define the scope so that our Central Engineering Department could proceed with the preparation of an appropriation request.

While it was still being considered I do not believe you could say that as of the date of February 10 it was still attractive in the east.

Q. Was it abandoned as of that date?

A. No. I believe I testified, and I attempted to find what in my recollection was a second look at the engineering figures. I can't find any record of it in our files, nor any other way to recall it specifically; so that I can only again say that somewhere between the time of first [fol. 647] reviewing these figures in January and the June period when the project was to go to the board of directors, which it did not do, we abandoned this approach for Pennsalt alone.

Q. In trying to fix the time more specifically than simply between January 20 and sometime in June can you recall any event within that period which sealed the doom of this independent venture, so to speak?

A. Mr. Freed, I cannot.

Q. From your examination of the February 10, 1959, press release would it be fair to conclude that at least as of that date the prospect had not so dimmed that the project had been abandoned?

Mr. De Lone: I object to the form of "the prospect." I think the question should define prospects for what.

The Court: Will you restate the question, Mr. Freed.

By Mr. Freed:

Q. At least as of February 10, 1959, Mr. Land, is it fair to conclude that the prospects of Pennsalt proceeding with a combined chlorate-perchlorate plant in the east had not vanished?

A. Yes, I think it is fair to say we could still be considering the prospects in the east at this time.

[fol. 648] The Court: Mr. Freed, we will take a recess and that will give you an opportunity to check your notes overnight, unless you are about to conclude?

Mr. Freed: I think we will accept your offer. Thank you.

(At this point the trial was adjourned, to reconvene at 10:00 a.m., Tuesday, November 21, 1961.)

[fol. 649] Tuesday, November 21, 1961, 10:00 o'clock a.m.

PRESENT:

As before noted.

Mr. Freed: Your Honor, overnight the Government has reviewed Mr. Land's testimony given yesterday in court on behalf of the defendants. We have also reviewed Mr. Land's earlier testimony on deposition introduced on behalf of the Government as Plaintiff's Exhibit 400.

On the basis of the testimony already in evidence we have no further questions.

Mr. De Lone: Would your Honor indulge us for just a moment. There are a few exhibits about which I want to ask Mr. Land. We have not had them ready, not anticipating this.

The Court: Do you want a five-minute recess?

Mr. De Lone: It would take about a minute for my associate to get the papers.

HUGH C. LAND, Resumed.

Redirect examination.

By Mr. De Lone:

Q. Mr. Land, in the course of your cross-examination [fol. 650] yesterday Mr. Freed called your attention to various estimates of cost and return which appear in Plaintiff's Exhibit 66, an unconformed copy of which you have before you.

You will note, for instance, in there a reference to a capital cost for a 12,000-ton per year plant ranging between $3,560—I am sorry. $3,560,000 and $4,773,000.

If the capital cost were the higher of those two figures would that have the effect of increasing or reducing the return on investment for the stated production of 12,000 tons?

A. It would reduce the return on investment.

Q. Will you turn to Plaintiff's Exhibit 82, about which

you were also asked yesteday, and directing your attention to page 4 you will see in the middle of the page reference to these estimates.

"We have used nine cents per pound in drums as the selling price. This is based on eight cents per pound bulk C.L. plus one cent per pound in drums."

I don't know what the "C.L." means.

A. Carload.

Q. Carload.

"—plus one cent per pound in drums."

If the product of the plant under consideration in this [fol. 651] study were to sell all of its product in bulk would it be sound then to predicate your figures on the drum price of nine cents per pound or on the bulk price of eight cents per pound?

A. You would have to use eight cents per pound for bulk shipment.

Q. In your considerations of a sodium chlorate plant at Calvert City or at some location east of the Rockies were your considerations with reference to a plant where the produce would be drummed, or what was the target you were interested in? What was the market you were thinking of?

A. We considered both drums and bulk; however, the essence of the market was for bulk shipments.

Q. Bulk shipments are the way the pulp industry takes the product, in bulk rather than in drums?

A. That is correct.

Q. Then all of the calculations on this exhibit, PX-82, and if I am wrong please correct me, all of the calculations are predicated on a figure one cent a pound above the market for what was the then going market price for sales in bulk to pulp mills?

A. That's right.

Q. Mr. Freed did some mathematics with you yesterday with reference to the profit that Pennsalt might have made [fol. 652] on the basis of the projections in PX-82. Would that profit be contingent on the price that was the basis of the projections, and also contingent on selling the full production—in the one case, 15,000 tons per year; in the other case, 20,000 tons per year?

A. These figures are prepared on the basis of capacity, which is the figure that you mentioned.

Q. So that the matters of price and how much you will in fact sell are assumed, and would it be fair to say, beyond the competence of the persons preparing this report to give you any guarantee for the future?

A. This is a regular way of preparing a report. It says to a division manager, "This is the optimum return you can expect." From here we have to prepare a detailed sales estimate and an estimate of what market price will be realized in the field.

Q. Is the return also dependent on what the construction actually costs, the construction of the plant itself, as distinguished from what is projected in the estimates?

A. Yes, sir.

Q. Would you turn to PX-100, which I believe you have before you, Mr. Land. Did I understand you to testify on cross-examination yesterday that these were the only figures [fol. 653] available to you on December 5, 1957, when Pennsalt made its decision not to go forward with the sodium chlorate plant in the East on its own?

A. I don't remember whether I said they were the only figures. I should have said they were the latest figures.

Q. The figures in PX-82, which you have seen just before this, were also available to you, were they not?

A. Yes, sir.

Q. And I assume more detailed studies to back these up?

A. Yes, sir.

Q. Now I show you PX-155, a press release of February 10, 1959. You were asked some questions yesterday about that in connection with Pennsalt's thinking about a combined sodium chlorate-ammonium perchlorate plant for Pennsalt alone East of the Rockies. Does that press release, PX-155, deal with a plant for Pennsalt East of the Rockies, a combined ammonium perchlorate-sodium chlorate plant?

A. No, sir. This press release has to do with the plant at Portland, Oregon and is concerned only with the western market.

Q. What then, if any, is the relationship between this press release and Pennsalt's thinking with reference to the

possibility of a combined sodium chlorate-ammonium perchlorate plant East of the Rockies for Pennsalt alone?

[fol. 654] A. It is very difficult to be precise as to the relationship of these two subjects. It is obvious this deals with the West. The fact that Pennsalt is making a substantial investment for ammonium perchlorate in the West would have a retarding effect upon our considerations in the East, in that here is a capital investment which is already committed in this field.

Q. Are you able from looking at this document to fix in point of time when it was that your interest began to wane in a sodium chlorate-ammonium perchlorate combined plant for Pennsalt on its own East of the Rockies?

A. Mr. De Lone, I am not able to fix a precise period in time. I have testified that I am sure that the matter was seriously considered in January. I can't find anything to substantiate figures that it was considered after that time. But I cannot fix it any closer than that.

Q. You were shown yesterday PX-153, some estimates from a Mr. Tryson dated January 20, 1959. Is that the consideration to which you make reference?

A. I am sure they were considered as of that time.

Q. You were asked by Mr. Freed about your knowledge with reference to Pennsalt's salesmen in the southeastern part of the United States as of the date of an answer to interrogatories which was shown to you. You made refer-[fol. 655]. ence on several occasions to what the situation was in 1955. How long were you personally concerned with and interested in and familiar with the number of salesmen available to Pennsalt in the southeastern states, accepting Mr. Freed's description of them to you yesterday, those that were concerned with sales of industrial chemicals to the pulp mills?

A. My knowledge is really limited to the area that I was Division Manager of the Eastern Division, which would be 1955 to the early part of 1960.

Q. During that period from 1955 through 1960 did you have any salesmen actively engaged in solicitation of sales of industrial chemicals to the pulp and paper industry

in the southeast, as Mr. Freed has described it, other than Mr. Wurst, that you mentioned, or his successor after his death?

A. I do not believe so.

Mr. De Lone: I have no further questions.

Recross-examination.

By Mr. Freed:

Q. Mr. Land, is it not a fact that the higher selling price of drummed sodium chlorate reflects the higher cost of drumming and the higher cost of selling sodium chlorate in smaller quantities?

A. Well, it certainly reflects the higher cost of drumming [fol. 656] material. I do not believe there would be a higher cost of selling because the technical service effort is inherent in the bulk sales, which is not necessarily in the drum sales. I would think the selling effort would be higher in the bulk.

Q. Once your establishment is set up it is a fact, is it not, there is a lower cost of production and selling sodium chlorate in bulk than in selling sodium chlorate in drums?

A. I am sure there is a lower cost of producing bulk. The combined cost because of the extra technical service work on the selling of bulk to the pulp and paper industry might make that the higher total cost, Mr. Freed. I cannot be sure of that answer.

Q. To put it another way: Does the price differential between sodium chlorate in drums and sodium chlorate in bulk reflect sheer profit to the producer, or does the additional price of sodium chlorate in drums reflect that there are additional costs which a producer must take into account in selling in drums?

A. Normally it is for that reason the differential is set up.

Mr. Freed: I have no further questions, your Honor.

Mr. De Lone: Thank you, Mr. Land. Mr. Drake.

[fol. 657] WILLIAM P. DRAKE, called as a witness on behalf of the defendants, being first duly sworn, testified as follows:

Direct examination.

By Mr. De Lone:

Q. Mr. Drake, where do you live?

A. In Berwyn, Pennsylvania.

Q. You are presently employed, are you not, as the president of the defendant in this case Pennsalt Chemicals Corporation?

A. Correct.

Q. Would you tell us in brief the course of your career in Pennsalt?

A. I started with Pennsalt in 1934 while still a student at Bowdoin, working summers. I worked for about three years in the plants as a student-trainee. I was then transferred to sales. I worked in sales ultimately as sales manager of the Chemical Specialties Division. I later became the general manager of the Chemical Specialties Division for a short time. I became a vice president of the company in 1949, I think it was. I was then later made the general manager of the Industrial Chemicals Division until February of 1955 when I became executive vice president, [fol. 658] and in July of 1955 president.

Q. You said or you testified you are president. Is there a chairman of the board of Pennsalt?

A. No.

Q. Is any of the members of Pennsalt other than its president a member of the board?

A. No.

Mr. De Lone: I will ask the Clerk to mark for identification as Defendants' Exhibit 3, a letter from Mr. Drake to Mr. Logan of June 18, 1953.

The Clerk: Defendants' Exhibit 3 For Identification.

(A letter from Mr. Drake to Mr. Logan dated June 18, 1953, was marked "Defendants' Exhibit No. 3 For Identification.")

Mr. De Lone: And to mark as Defendants' Exhibit 4 a letter from Mr. Shanaman to Mr. Drake dated July 9, 1953.

(A letter from Mr. Shanaman to Mr. Drake dated July 9, 1953, was marked "Defendants' Exhibit No. 4 For Identification.")

Mr. De Lone: As Defendants' Exhibit 5 a letter from Mr. Drummond to Mr. Drake of December 1, 1954.

(A letter from Mr. Drummond to Mr. Drake dated December 1, 1954, was marked "Defendants' Exhibit No. 5 For Identification.")

[fol. 659] By Mr. De Lone:

Q. Mr. Drake, were you involved in the negotiation of an agreement with reference to a right to use Olin Mathieson's chlorine dioxide generating system?

A. Yes.

Q. How did this come about, your negotiating for a chlorine dioxide right from Olin Mathieson?

A. Mr. F. C. Shanaman, who was at that time the head of our western operation in the northwest, expressed a desire if possible to get a license under the chlorine dioxide process, recognizing that the Solvay organization had a similar process and were beginning to solicit accounts in the northwest primarily, and were using this as a sales tool to get business.

Mr. Shanaman felt that were we able to negotiate an agreement with Mathieson by which we could offer their process it would serve to counteract the added competition from Solvay, and, therefore, since I was in the East he asked me if I would negotiate this with John Logan of Mathieson.

Q. These papers which you have before you, sir, which are PX-58, letter of May 22, 1953, PX-59, a letter of May 25, 1953, DX-3, a letter of June 18, 1953—do you have that?

A. Correct.

Q. And a memorandum from you to Mr. Shanaman of June 26, 1953—I should say from Shanaman to you.

[fol. 660] A. DX-4.

Q. Yes. Another from Shanaman to you dated July 9, 1953.

A. July 9 is the DX-4.

Mr. De Lone: There seems to be some confusion. I am very sorry, sir.

I will ask the Clerk to mark as Defendants' Exhibit 6 a memorandum from Mr. Shanaman to Mr. Drake dated June 26, 1953.

(Memorandum dated June 26, 1953, from Shanaman to Drake, was marked "Defendants' Exhibit No. 6 For Identification.")

By Mr. De Lone:

Q. Now Mr. Drake, I think the set is complete. Plaintiff's Exhibit 58, Plaintiff's Exhibit 59, Defendants' Exhibit 3, Defendants' Exhibit 6, Defendants' Exhibit 4, Plaintiff's Exhibit 60, and Defendants' Exhibit 5, do they all concern the negotiations between you and Mr. Logan with reference to this chlorine dioxide licensing arrangement?

A. Did you make a statement or did you ask a question?

Q. I asked you if they all concerned the negotiations about this chlorine dioxide arrangement with Olin Mathieson?

A. I would say all except DX-5, which in effect does not concern my negotiations. It is merely a letter advising me of a change. This is a later document after the negotiations [fol. 661] had been completed, I believe. But for all intents and purposes, yes.

Q. Calling your attention specifically to PX-60, the letter from you to Mr. Logan of July 31, 1953, that has attached the two-page agreement between Olin Mathieson and Pennsalt on this subject. Now will you look at that agreement and tell me whether that sets forth the entire understanding of the parties with reference to chlorine dioxide licensing as you had negotiated it in July of 1953?

A. This, including the attachment referring to the licensing of the mills themselves, yes, it does include the complete agreement.

Q. Mr. Drake, when did you first become aware of any

interest or concern in Pennsalt over the possibility of constructing a sodium chlorate plant East of the Rocky Mountains? I show you in that connection, if it is of any help to you, Plaintiff's Exhibits 64 and 65.

A. The first recollection that I have of our interest in a plant for sodium chlorate in the East—when I say East, East of the Rocky Mountains—was shortly after we had increased the capacity of our Portland plant. George Grogan, who was then sales manager——

Q. Could you fix which increase you are talking about?

A. The 1952-3 increase. It was in that period. I beg [fol. 662] your pardon; it was in 1954, late 1954, that we had the increase, this particular increase.

George Grogan came to me one day and indicated that he had noticed that the western plant had excess chlorate and would it be possible for him to handle some of it. This was a perfectly natural request on the part of any sales manager whose desire obviously is to sell chemicals.

I then asked him how much he thought he might be able to sell in the East. Subsequently, as the document PX-64 indicates, I passed this on to the Central Engineering Group, who about the same time were roughing up some figures on what we might do for a chlorate plant in the East. I am sure that this probably had been stimulated by the expansion that we had put in at Calvert City, that being a logical spot for a chlorate plant due to its low cost power primarily, and the fact that we had an operation there.

Q. You have indicated that you inquired of Grogan how much Pennsalt might sell in the East. Was your inquiry with reference to what it might sell if it had a plant in the East, or did you mean making it on the West Coast and shipping it East?

A. I am sure that it was a combination, actually. I wanted to be able to have some definite figure to talk to Mr. Fred Shanaman about in the event we shipped it East, [fol. 663] and also inasmuch as we had been producing chlorates in the West since, I believe, 1941, it was a logical thing for us to periodically think of the possibility of producing chlorate in the East.

Q. PX-64, which you have before you, is your memorandum to Mr. Woodard that you made reference to, which

says, "We should be able to sell about 5,000 to 8,000 tons out of Calvert at a price of 8.25."

A. Yes.

Q. Did Mr. Grogan indicate to you that you would be able to sell that tonnage also out of your Portland plant, sell it in the East out of your Portland plant?

A. No.

Q. I call your attention to PX-65. I see your initials—I'm sorry, your designation, D-11—at the bottom of that document, the letter from Mr. Grogan to the Champion Paper Company. Do you recall the circumstances under which that letter was written to Champion Paper?

A. I certainly do because as I recall it the wording of the last paragraph of that letter is, I believe, my own.

Q. And the last paragraph makes reference to a contemplated plant at Calvert City which is still in the figuring stage?

A. Yes, sir.

[fol. 664] Q. Did that figuring stage eventuate in a document of March 8, 1955, Mr. Woodard to you, which has been marked Plaintiff's Exhibit 66, and which I show you?

A. I believe so.

Q. In PX-66 it says or makes reference to the basic return for sodium chlorate manufacture is not attractive.

What was Pennsalt's policy at this time with reference to the return on investment which it sought for a project such as this, a new plant to make a product not theretofore made in that marketing area?

A. At that time it was 30% return before taxes on the total investment.

By the Court:

Q. Physical properties, fixed assets and working capital?

A. Yes.

By Mr. De Lone:

Q. Did you have anything to do with formulating that policy, Mr. Drake?

A. Yes.

Q. Why is it that you were seeking a 30% return? What is the reason for that?

A. If anyone were to look at our record of the preceding years and the return on investment of the company they would readily note that Pennsalt's return on investment [fol. 665] by comparison with other chemical companies was very poor. Part of the reason, I believe, that it was poor is that we did not have guide posts of the nature we now have and instituted in 1955 which would help us to direct the future of our company.

We set up those guide posts as a part of an over-all program for growth for the company. The objective of the principal objective was then, and still is, and will continue to be, to increase on a sound and consistent basis our earnings per share of stock outstanding.

One of the ways you do that is to only invest your shareholders funds in projects which will show a sufficient return to increase that over-all return and thereby yield the increase in earnings per share which we were trying to obtain.

I am happy to say, incidentally, that we have been somewhat successful in it, although we are far from where we should be.

Q. Mr. Drake, I show you Plaintiff's Exhibit 340. Would you tell us what that is?

A. Pardon?

Q. Tell us what this Plaintiff's Exhibit 340 is.

A. I mentioned a moment ago that we did not compare favorably with our competitors. These represent or this document represents a list of competitors. We have broken [fol. 666] down into various segments those whose sales are under a hundred million, those of sales of a hundred million to under four hundred million, and those with sales over four hundred million.

This shows what the net return—this is after taxes—is for each of these companies, including Pennsalt, for the years 1950 through 1960.

Pennsalt is at the bottom of the page. You will note by comparisons that with very few exceptions Pennsalt should be at the bottom of the page in terms of return on shareholders' equity.

Q. You became the executive vice president in February of 1955, and the president in the summer of 1955?

A. Right.

Q. Was it on your becoming president or executive vice president that you began to stress the point about improving the return on shareholders' equity which you mentioned?

A. Actually when I became the executive vice president.

Q. In this Exhibit PX-340 the return on shareholders' equity computed there, was that computation based on what is distributed to the shareholders, in other words, after corporate taxes?

A. Correct. This is not necessarily distributed to shareholders.

[fol. 667] Q. I beg your pardon.

A. It is what is earned after taxes on the shareholders' investment.

By the Court:

Q. The difference between assets and liabilities, I suppose?

A. It is capital and surplus, which is really the total of capital and surplus as against the whole gross investment.

We have another term which we used internally to determine the effectiveness of management's handling of all the funds made available to them; that is return on gross investment.

This is the return on what the shareholder is interested in; how much has he put into this venture, either put in or left in.

By Mr. De Lone:

Q. This shows what he has earned on what he put in, per share?

A. What he has earned percentagewise of that amount which he has either put in or left in.

By the Court:

Q. He has put in increments there to?

A. Yes.

Q. This is on the book shareholders' equity, I take it, [fol. 668] your balance sheet shareholders' equity?

A. Yes.

By Mr. De Lone:

Q. With reference to this other figure of 30% we referred to when you were looking at PX-66, that 30% on return of the project, is that on a before tax or after tax——

A. 30% before taxes.

Q. In your program since that time have all your project by project computations been on the basis of a before tax return?

A. Right. I might add here that we estimate that we must invest in our company——

You have to think of this in terms of Pennsalt only, it does not apply to any other company because companies are not that much alike.

But in our company it takes an investment of approximately $30,000,000 at 30% return before taxes to increase our return on shareholders' equity by 1%.

Why is that? Obviously if you had the whole thirty million at a 30% return it should increase it considerably more, but the 30% has to allow also for obsolescence of old products, and it is constantly going on, particularly in the chemical industry, and, furthermore, it has to allow for the no return projects such as the replacement of a roof, and the [fol. 669] upkeep of your plants, which you have to do, so that if you look at it in that light I think you have a clearer picture of just why a 30% return is so very essential.

There is nothing sacred about it. I said before it is a guide post. But you cannot vary from it very much or else your objective becomes almost impossible.

Q. I see, Mr. Drake, that from 1955 to 1960 there has been some improvement in the return on shareholders' equity in Pennsalt.

A. Yes, there has.

Q. During all of that period were you seeking a 30%

return, or something in that order of magnitude for new projects?

A. A project of this nature, yes.

Q. During that period approximately what has been invested by Pennsalt in new projects and other capital investments?

A. Our total capital investment in the last five years has been a little over $60,000,000. Coincidentally, the return on the shareholders' equity has gone up about two per cent.

Q. You do not know what the figure is for 1961 yet?

A. For the first nine months it was a little under 9%.

Q. Is this return on investment of significance to your [fol. 670] company in the market place for money?

A. I cannot overemphasize the importance of it. People are not going to invest money in Pennsalt if we cannot show at least as good a return as they can get in the average chemical companies.

Q. Reverting, then, to the subject of sodium chlorate in the East, and to Plaintiff's Exhibit 66, that bears on the top of it this time just the letter "D" with the word "agree."

Do you see that in your handwriting, I believe? That is not on your copy?

A. That is all right. I can recall it.

Q. I would rather you have a copy that shows it. Here is a conformed copy that has numbers and the letters, and the word "agree" and a question mark.

A. Yes. That is correct.

Q. The "D" underneath means "Drake." You did not write "D-11"?

A. D-11.

Q. Is that D-11?

A. "D" with a "w" inside of it.

Q. At this time so far as you are concerned, March 8, 1955, did your question and the answers you received, and your further consideration of those answers lead to a conclusion as to whether or not you would go forward alone, [fol. 671] March 8 or thereabouts, 1955, in constructing a sodium chlorate plant in the East?

A. The question I asked was the last sentence; it was in relation to the last sentence on the page, where it says:

"We believe the expense of refining these figures further would be unwarranted."

I sent this very document to—I believe it was Hugh Land, who was then production manager; Frank Lucard, who was either the head of market development or technical services in the division; George Grogan, who was sales manager; and I believe I sent it also to George Collins, who at that time was assistant to the president. They agreed.

I said, "Do you agree?" And they all said "Yes."

That buried this momentarily at least.

Q. At this time, on March 8, 1955, when sodium chlorate in the East for Pennsalt alone was buried, had you ever had, or to your knowledge had anyone else in Pennsalt ever had, any discussions with Olin Mathieson about the possibility of a joint venture in sodium chlorate in the East?

A. I am trying to fix the dates in my mind.

Q. Is there any paper I can supply to help you fix the dates?

A. No. No, I had not had any discussion with Olin Mathieson up to this point. If I am correct on my dates, I [fol. 672] think no one had had discussions at this stage.

Q. Who was it that, so far as you know, first may have had any discussions with Olin Mathieson on that subject?

A. That's what made me hesitate on this last answer. As I recall it, there was some mention made in the documents in regard to Roy Shanaman, I think it was.

Q. Mr. Drake, I will show you Plaintiff's Exhibit 73, dated December 27, 1956, over a year after the memorandum we are discussing, and call your attention to the statement in there, "Incidentally, the last time we talked with Olin Mathieson about building a chlorate plant . . ." Do you see that, about the middle of the last page?

A. Yes.

Q. Does that aid you, that memorandum of December 27, 1956, in recalling when you first learned of any discussions with Olin Mathieson about a chlorate plant in the East?

If it doesn't, Mr. Drake, I don't want you to guess. You just tell us whether you had ever been involved.

A. I know I hadn't. I am just trying to make sure that I answer the question as accurately as possible.

Q. If you are not able to answer accurately as to others, I just don't want you to guess.

A. Very good.

Q. So far as you are concerned, on March 8, 1955, you [fol. 673] had never discussed the possibility of a joint venture with Olin Mathieson?

A. No.

Q. After that March 8, 1955 putting to bed the idea, as I think you described it, when did it next come to your attention the possibility of a sodium chlorate plant in the East? In that connection I will show you Plaintiff's Exhibit 71 and Plaintiff's Exhibit 72, as well as 73 which you already have before you.

Do you understand the question, Mr. Drake? Take your time in looking at the documents.

A. As I recall it, as I said before, we put the idea of a chlorate plant in the East to bed after the agreement on the March 8, 1955, document, PX-66. Then along in about December of 1956 came the announcement that Oldbury was then expanding its Mississippi plant. This came to me, I think, out of a newspaper clipping, the information of which I sent to Fred Shanaman with the comment that on the face of this announcement it makes us look kind of silly when we consider the number of times we have evaluated unsuccessfully the installation of chlorate plant in the southeast.

I might add there that "we" meant the company at large, not necessarily Shanaman or myself. I suggested that he look at it again when he came East in January.

[fol. 674] Q. You were in court when Mr. Land was testifying yesterday and he summarized in general the fact that he and Mr. Shanaman had both responded as in Plaintiff's Exhibits 72 and 73, and that the net result was the commission of a task force as shown by Plaintiff's Exhibit 74, which I now show you. Is that in general consistent with your recollection of what transpired?

A. That's correct.

Q. With reference to Plaintiff's Exhibit 74, this is a memorandum from Mr. Willits to Dr. LaLande. It says, "The purpose of the report is to determine for the last time the following," and then lists these items. A copy

went to you. Did you agree that that was the purpose of the task force?

A. Yes, sir. Mr. Willits, incidentally, at this time was secretary of the group, he having served as assistant to the president. In fact, he still was on January 22, 1957, and in that capacity served as secretary of the management committee.

Q. In the memorandum PX-71, which rekindled your interest, the reference is to Oldbury expanding its Mississippi plant. I call your attention to the response, December 27, 1956, from Land to you. At the bottom there, the last paragraph, "It is entirely possible that Hooker is expanding their production in the East with the idea of increasing the selling price after they have become so thoroughly [fol. 675] entrenched in the eastern market."

Is Hooker and Oldbury the same?

A. Hooker had purchased Oldbury for, I think, something like $19,000,000 shortly before this, several years before this, so that they are one and the same. For a time I believe they operated Oldbury as the Oldbury Division, which, incidentally, formed quite a formidable competitor which we were not oblivious of when we were thinking of a plant in the southeast.

Q. Mr. Drake, do you now have before you Plaintiff's Exhibits 76, 82 and 83?

A. Yes, sir.

Q. Have you looked at them?

A. Yes, sir.

Q. Calling your attention to PX-76, you wrote to Dr. LaLande. He was in charge of this task force, wasn't he?

A. He was the chairman of the task force, that's correct.

Q. You wrote to him about the report that AmPot was going to build a new plant at Aberdeen, Mississippi. "I thought this information would be helpful to you in the appraisal you are making of our chlorate position."

What was your thinking about the significance of the intelligence that AmPot was about to build a plant in Mississippi?

A. As I mentioned a moment ago, the Hooker-Oldbury [fol. 676] combination made a very formidable competitor. Likewise, the American Potash-Solvay combination made

a similarly formidable competitor. The fact that these two were expanding, one expanding the other building a new plant, I think gave us some real food for thought, particularly since it was in an area which we were considering at that time getting into.

Q. You say they were formidable combinations, I think that was the term you used, as competitors. You made reference to the AmPot-Solvay combination. Why were they formidable and what are you talking about?

A. The AmPot-Solvay combination was—Solvay with their chlorine dioxide process had a sales tool which they were using, along with their sales coverage, and were reselling American Potash production, as I recall it.

Q. You say along with their sales coverage. Sales coverage of what?

A. Of their selling organization, through their Solvay Division; that is, Allied Chemical Solvay Division, in the area to which we have been referring, the Southeast.

Q. Pursuant to PX-82 and PX-83, both of which I believe you have before you, after part one of this task force was completed the Arthur D. Little concern was commissioned to make a market study, as Mr. Land testified yesterday. Is that your recollection too?

[fol. 677] A. Yes, sir.

Q. Following that study there was a meeting held on November 6, 1957, reported in a memorandum of November 18, PX-99, which I show you. You are not listed as one of those who attended that meeting, Mr. Drake, although you got a copy of this memorandum apparently. D-11 got a copy.

A. I received a copy and I did not attend the meeting.

Q. Did you take any action pursuant to the copy you received, or do you have any recollection of what you did with specific reference to this memorandum and the meeting that you didn't attend?

A. I recall no action that I took at this time.

Q. I show you, Mr. Drake, Plaintiff's Exhibit 102, concerning a meeting on December 5, 1957, and ask you whether you recall that meeting.

A. Very definitely.

Q. Refreshing your recollection if you need to from the

memorandum, will you tell us what was decided at the meeting of December 5, 1957?

A. The first and most important thing that was decided finally was that we would not proceed further with the idea of a chlorate plant in the East. I am speaking now of solely chlorate, and doing it with Pennsalt's investment solely. That was the first and most important decision.

[fol. 678] Q. Was anything else then decided on?

A. There was then discussion as to how could we jell a chlorate plant, and there was discussion of the possibility of exploring with Olin Mathieson the possibility of interesting them in a joint venture.

Q. Was any other action authorized at this meeting of December 5, 1957?

A. The only other action authorized was to tell Mr. Shanaman to talk with Mr. Logan about the sale of chlorates from his production in the northwest to Olin Mathieson.

Q. Do you recall what the status of the western plant was at this time with reference to its capacity and whether or not it had excess production?

A. Yes. We had just recently increased capacity in the northwest, and we had some excess, which we always try to have when we increase any plant capacity. Sometimes, incidentally, we have a little too much. Therefore we felt that the combination of Fred Shanaman's immediate, at least, inability to sell the entire output of the plant, and the possibility of interesting Olin Mathieson in some form of a joint venture, one way of interesting them might be to talk to them about their handling on an introductory offer basis some of this excess production in the northwest, in the southeastern area.

[fol. 679] Q. Now, which came first, the decision you would not go forward with the sodium chlorate plant in the East on your own, or the decision to sell some chlorate to Olin, or the decision to pursue the possibility of a joint venture?

A. Our objective had been, and continued up to this point, to try to see some way that we could put in a chlorate plant on our own. At this point we had exhausted, to the best of our ability, any means as we saw it to do this on our own; so the first decision was not to do it ourselves, and having made that decision then we considered, "Well, now

if we cannot do it ourselves what is another way to do this?"

Q. Did you have available to you at that time any assurance that you would be able to get a joint venture with Olin Mathieson?

A. None whatsoever.

Q. Mr. Drake, I show you Plaintiff's Exhibit 103 and Defendants' Exhibit 7.

Mr. Drake, showing you now Plaintiff's Exhibit 103, first calling your attention back to 102, you see there is some handwriting on Plaintiff's Exhibit 102 up at the top?

A. Yes.

Q. It reads, as I make it out, "Will S-12 write memo after talking with J. Logan."

A. Right.

[fol. 680] Q. Who is "S-12"?

A. Fred Shanaman.

Q. This bears the initials underneath it D-11, at the top of it the initials W-1. Is this in your handwriting, that little notation?

A. I think not. It could be Mrs. Rabe's handwriting, who was Mr. Willits' secretary who may have been doing some work for me at the time, and undoubtedly I asked to make sure that Fred Shanaman kept me advised of what the outcome was of his discussion with John Logan.

Q. Did you receive any memorandum from Mr Shanaman about his talk with Logan other than PX-103?

A. No.

Q. Which is a copy of the letter which he wrote to Mr. Logan.

A. I think this was Fred's means of keeping me advised. "This" being PX-103.

Q. You also received a copy, I take it, of DX-7, a memorandum from Mr. Willits to the file of December 20, 1957?

A. Yes.

Q. Both of these make reference to the possibility of a meeting between Pennsalt representatives and Olin representatives in January or February.

I show you PX-111, and you have that too, I believe. [fol. 681] Do you find it?

I ask you if that is the first meeting you had between

Pennsalt representatives and Olin representatives pursuant to PX-103 and DX-7?

A. That is correct.

Q. Will you read the memorandum and then tell us whether it accurately reflects as you recall it what transpired at your meeting on February 3, 1958?

A. It certainly covers my understanding of the essence of that meeting, yes. I am not sure I would express it exactly the way he has, but it is the essence.

Q. At that meeting did either Pennsalt or Olin undertake or agree to restrict its freedom of action with reference to sodium chlorate, ammonium perchlorate, or the two products combined, or a plant to produce the two?

A. Not only was there no restriction of action, I think the events following this will bear that out, that this was merely a gentlemanly way of proceeding with no restriction as to whether or not we went alone on a project, or Olin went alone in a project. The gentlemanly thing to do would be to advise them if our decision was to go alone, and they, I would assume, would do the same to us.

There were no restrictions here. That is very important.

[fol. 682] Mr. De Lone: If your Honor is planning a recess——

The Court: We will take a recess for ten minutes.

(At this point a short recess was taken.)

By Mr. De Lone:

Q. Mr. Drake, I call your attention now to the subject of ammonium perchlorate, and refer you in that connection to Plaintiff's Exhibits 112 and 113. Would you tell us when Pennsalt first entered into the manufacture of ammonium perchlorate, or decided to enter into it, at least?

A. Well, the decision to enter into the manufacture of ammonium perchlorate on a small scale—I think it is important to recognize that the initial effort was really in the pilot plant; whether you can call that manufacture or not I don't know—was in the early part of 1958, as reflected in this press release which you have marked PX-112 and 113, the only difference being that one is the rough draft and the other is the final.

Q. As far as 112 is concerned, the draft of February 5, 1958, who prepared that draft?

A. From the hieroglyphics on it, it would appear that I had.

Q. PX-113, which it has been agreed that the best date we can fix it around is February 11th, is the release as it ultimately issued, is that correct?

[fol. 683] A. I believe so.

Q. Both in the draft and in the final release, PX-112 and 113, there is a reference to "Plans are also being made to build another larger unit at a yet unannounced location in the South." What did that have reference to, Mr. Drake?

A. We had been making some studies on, I believe it was, a 6,000-ton ammonium perchlorate plant. When I say studies, primarily an engineering study. No decision had been made. I want to emphasize that. It was really an investigation of what would the economics be of a 6,000-ton perchlorate plant in the Southeast.

Q. In this period beginning in 1958, with your pilot plant on the West Coast at Portland, did Pennsalt continue to study and consider the possibility of the manufacture of ammonium perchlorate at a southern location?

A. Yes.

Q. Was that considered in connection with ammonium perchlorate alone or in connection with a unit to make sodium chlorate, from which you would also make the ammonium perchlorate?

A. You would have to have—I say you would have to have; you could ship it in but it would be very uneconomical to do so—you would need to make an economical plant at least the amount of sodium chlorate required for the am-

[fol. 684] monium perchlorate. I believe it is a pound, or a little over a pound, of chlorate per pound of ammonium perchlorate.

Mr. De Lone: If the court please, I want to mark as an exhibit and show to the witness a memorandum dated July 9, 1958, on the subject of ammonium perchlorate. Through inadvertence, apparently, this was not included in the list of documents we have designated to the Government.

The Court: Is there any objection, Mr. Freed? Will you look at the document?

Mr. Freed: Mr. De Lone did show us the document during the recess. We have no recollection of having seen it before, and it was not designated. We have not had an opportunity to determine whether there are any other documents to which it relates, and we had simply proceeded on the assumption that the list of documents designated was in accordance with the court order to which defendants would be confined in their presentation.

The Court: Do you object or not to the document being marked and the witness examined on it?

Mr. Freed: May I have a moment, sir?

The Court: Yes.

Mr. Freed: We have no objection, your Honor.

By Mr. De Lone:

Q. Mr. Drake, I show you Defendants' Exhibits 8, 9 and 10.

[fol. 685] Defendants' Exhibit 8 is a memorandum from you to Mr. Shanaman dated July 9, 1958. Defendants' Exhibit 9 is a memorandum from Shanaman to you dated July 18, 1958, and Defendants' Exhibit 10 is the memorandum enclosed with Defendants' Exhibit 9, being the memorandum of July 18 from Karr to Shanaman.

The period of these documents, July of 1958, what was the status of your interest in the subject of ammonium perchlorate, and do these documents bear on it?

A. At first my greatest interest in ammonium perchlorate at this stage, inasmuch as we had made an investment in the northwest, small though it was at the time, was to see what we were going to do with this investment, were we going to be able to get a decent return on it, bearing in mind it was a pilot plant.

The only way we could get a return would be to expand it enough or put in a commercial plant which would return us the investment we made in the pilot plant operation. That was my first interest, I would say.

I also had the corollary interest of the continuing possibility of a perchlorate plant in the Southeast.

Q. On DX 9 there is some longhand which looks to me like yours.

A. It is.

[fol. 686] Q. Would you read that for us because it is not perhaps legible.

A. To "S-12" means to Shanaman. I returned this to him with the comment, "I would say that Errol's summary is encouraging. Let's keep close to this."

Those are my initials at the bottom. "Errol" being Errol Karr who wrote the report "Ammonium perchlorate" marked DX-10.

Q. Mr. Drake, I show you a series of documents PX-136, 139, 141, 142. Would you look at each of those and after you have looked at them would you tell me whether in September of 1958 or October of 1958 Pennsalt was still actively considering constructing a sodium chlorate plant alone, just a sodium chlorate plant on its own?

A. It very definitely was not. You could infer from these memoranda that, particularly the first one, PX-136, where the term "chlorate plant" has been, I think, rather loosely used.

Under Roman numeral IV, item (a) it refers to whether we will build a sodium chlorate plant, and if so, where.

If you keep on through these documents you will see that there has been a very loose use of the word "chlorate," "chlorates." In each of the instances we are [fol. 687] referring to the combination of an ammonium perchlorate-chlorate plant in the Southeast. No consideration was given to a sodium chlorate plant with Pennsalt doing it alone since our December 1957 meeting.

Q. These documents indicate that this is an item to be discussed, and as PX-142 shows, it makes reference to a meeting of October 22 to conclude what if anything we should do on chlorates in the Southeast.

I show you in that connection PX-143, a memorandum of a meeting held on October 27, 1958, and I also show you PX-146, a memorandum of a meeting held on November 3, 1958. Is the discussion reflected in the minutes of PX-143, the meeting of October 27, 1958, the first general discussion in the fall of 1958 among the management group of Pennsalt of the possibilities of Pennsalt alone constructing a combined sodium chlorate-ammonium perchlorate plant East of the Rockies?

A. As I recall the meeting that took place three years

ago, approximately, I think this reflects, to the best of my recollection, what took place at that meeting, yes, what was discussed.

Q. And that was followed by the meeting on November 3, PX-146, which was the subject of some discussion here yesterday. Do you recall attending the meeting of November 3, 1958, reported in PX-146?

[fol. 688] Do you have the question?

A. You asked if I recall attending the meeting. Specifically I don't recall attending the meeting.

Q. Perhaps if you would look at the summary on page 3, item 2 states:

> "Mr. Drake will apprise the board of the proposed plans for production and marketing of sodium chlorate and ammonium perchlorate in the East; specifically the proposed plant at Calvert City is to have a capacity of 30,000 tons per year of sodium chlorate, 10,000 tons per year of ammonium perchlorate."

I am not sure that all copies of this show what is on the court's exhibit, which is a notation in the margin opposite that which shows "done, 11-3-58," in your handwriting, I believe.

A. That is correct.

Q. Does that call to mind whether you did attend this meeting on November 3, 1958?

A. Can I answer this in this way. Obviously I was there. Whether physically I recall what time I walked in the door and what time I left, I don't.

Q. I'm sorry, Mr. Drake. If my questions indicated I wanted that information, I didn't pose the questions properly.

[fol. 689] Would you just go ahead in your own way?

A. I obviously did attend this meeting, which was a further discussion of the possibility of a combined chlorate-perchlorate plant in the Southeast. I stated at that meeting that I would mention this to the board at its next meeting, which was held, I believe, on November 3, 1958, and I did mention it to the board.

I think it is important to bear in mind that I simply mentioned it to the board, as I was accustomed to do on any

thinking of this nature, on any project, merely to keep them advised of what we were thinking about.

Q. Did you at that meeting make a decision to go ahead with an ammonium perchlorate-sodium chlorate plant for Pennsalt alone at Calvert, with the capacity described in the memorandum?

A. No, sir.

Q. What was the decision at that meeting, if there was a decision?

A. I think in effect the decision was to pass this buck, as it were, to Mr. Drake, for him to make a decision as to whether we were to proceed further with it, as reflected in item 3 on page 3 of the document market PX-146.

Q. That says "Mr. Drake will make final decision to authorize action and expenditures." Under that is, "Central Engineering immediately to design and engineer." Did you [fol. 690] ever authorize Central Engineering to design and engineer, or an appropriation request for this project?

A. As I recall the cost of such an engineering study was approximately $200,000, and I did not authorize such an expenditure.

Q. The next of these items that you were to authorize action and expenditure for was, "Industrial Division immediately to plan, organize and undertake entry into the Southern and Eastern pulp and paper markets." Did you subsequently authorize that?

A. I did not. To my knowledge it was not done.

Q. Next, "Western Division immediately to plan, organize and undertake more extensive sales and promotional coverage of the ammonium perchlorate purchases." Do you know whether that was done?

A. I think an effort was made to do that, yes.

Q. And the last, "Public Relations immediately to prepare press releases to publicize both the Portland and the Calvert City expansions, both as follow-ups of previous announcements."

A. I don't recall that that was done.

Q. Did you ever subsequent to this date, November 3, 1958, finally authorize proceeding with a combined sodium chlorate-ammonium perchlorate plant for Pennsalt on its [fol 691] own, East of the Rockies?

A. No, sir.

Q. Why not, Mr. Drake?

A. For two reasons. First, such a plant would have to be proposed—I wouldn't say have to be; normally it is proposed by someone other than myself. No such plant was proposed specifically.

Secondly, I think there were too many holes in this thing to have approved it, had it been proposed. There were inconsistencies which I felt; you can call it intuition, whatever you want to call it. We were not ready. As I saw it, this was not a project that would be profitable for Pennsalt. The risk was too great for the amount of profit guesstimated. I say that wisely because it was a guesstimate more than an estimate, in my estimation. For that reason there was no approval given.

Q. Mr. Drake, item 9 on page 2 and the top of page 3 comments about 10% of PCC—that's Pennsalt Chemical Corporation—current sales are in the pulp and paper with the proposed expansion of chlorates this would be about 15% in 1953.

Was this factor considered by you in deciding whether or not to authorize further action in this regard?

A. I think the fact that that was mentioned in PX-146 [fol. 692] reflects a question which was constantly in my mind, and I raised it at this time as to what such an expansion if put through, when added to our then present sales to the pulp and paper industry, would make our total sales in relation, that is, total sales to the pulp and paper industry, in relation to our over-all corporate sales.

Experience is very helpful. One of the experiences we had in our company not many years ago was to get dependent upon a given industry. In fact, if you look at those figures that we looked at earlier this morning in return on shareholders investment you will note that the years 1950 and 1951 were exceedingly good, and they were exceedingly good because in the year 1951 particularly, and partially in 1950—or the other way around, 1950 and 1951—about 25% of our earnings were derived from agriculture chemicals. That was fine. That was two and a half million dollars of earnings before taxes. Two years later agricultural chemicals showed a loss.

Now, a company of our size cannot take a swing of that magnitude without really feeling it. Therefore, that expe-

rience has prompted me from time to time to determine as best we can, depending upon the stability of a given market, the growth potential of a given market as well, how dependent we are on that market.

The yardstick we have tried to use in regard to the [fol. 693] pulp and paper industry, and bear in mind this is a yardstick, is about 15% for the over-all company. Obviously up in the northwest it is more than that, of their total activity.

But I think that is an important factor and is one of those factors which would go through my mind normally in evaluating a project of this sort. Fortunately this would not take us over 15%. Bearing in mind that we have growth requirements for chlorine and caustic continuously as the pulp and paper industry grows, so long as that investment in chlorine and caustic is profitable we intend to grow with it.

Q. The 10% figure reflected here, 10% of current sales are in pulp and paper, is that in a particular part of the country?

A. That is the whole company.

Q. Where, if you know, was the bulk of that 10%?

A. The bulk of it was in the Northwest; a very small part of it, I believe, was up in the Wisconsin-Minnesota area.

(A copy of the Appropriation Committee meeting No. 12, dated December 23, 1958, was marked "Defendants' Exhibit No. 11 For Identification.")

By Mr. De Lone:

[fol. 694] Q. Mr. Drake, I show you Defendants' Exhibit 1, Plaintiff's Exhibit 148, Defendants' Exhibit 11, and Plaintiff's Exhibit 151. Have you had a chance to look them over while we have been thinking things out down here?

A. Yes, I have.

Mr. Freed: Your Honor, with respect to Defendants' Exhibit 11, which are the minutes of the Appropriation Committee meeting No. 12, dated December 23, 1958, this document was not on the list of documents furnished by

the defendants to the Government in accordance with the court order, but we will waive our objection to its admissibility.

Mr. De Lone: Thank you. We have a mass of those minutes that have all been reviewed by both sides.

By Mr. De Lone:

Q. Mr. Drake, after reviewing those documents would you tell us what became of the ammonium perchlorate-sodium chlorate plant at Calvert which had been projected in PX-146 at the time of your meeting of November 3?

A. The best way I can express it is that our interest waned in a joint chlorate-perchlorate plant for Calvert City.

As to why, which would obviously be the next question, I think one of the answers can be gleaned from D-1, item 2.

When you become faced with such statements as to the [fol. 695] possibility of the double accounting exists in the several estimates of future demand for ammonium perchlorate obtained from the rocket engine manufacturers it shakes your confidence a bit in just what this market may amount to. I think this in itself would be reason for pause.

Q. Mr. Drake, was the ability in these projections discussed on November 3, 1958, was the ability of these projections to equal your standard for return on the investment in any way dependent on the ammonium perchlorate side of the projected combined ammonium perchlorate-sodium chlorate plant?

A. I think to say that it was in any way dependent would be putting it very mildly. The whole project depended upon the marketability and the profitability of the ammonium perchlorate, the latter being only the result of the former, getting profits from the market.

Q. Why do you say the whole project depended on that? The plan under discussion, PX-146, was to make 30,000 tons of sodium chlorate and only 10,000 tons of ammonium perchlorate?

A. That is correct, but the profitability of the project. Sure, you will get some profit from your chlorate, but the real nub of the investment was the perchlorate. The whole investment depended upon our ability to sell 10,000 tons of ammonium perchlorate.

Q. At what price?

[fol. 696] A. At the then market price. My recollection is that some of the figures showed 38¢ a pound; then it was reduced to about 32¢ a pound.

Q. Do I correctly understand your answer to mean that without the sales of ammonium perchlorate projected in those figures that were under discussion back on November 3, 1958, at the prices then projected, the return on this project would not come up to your investment standards?

A. That is correct.

Q. You were explaining what had happened to it, and I interrupted. Perhaps there is something further you wanted to comment on with reference to my initial question.

A. Well, I think it is a corollary comment that as we became less enchanted with the possibility of selling perchlorate out of an eastern operation, and yet with the feeling that we wanted to keep our finger in the perchlorate pie, along came a proposal from Fred Shanaman to construct a commercial, a small commercial plant, in the northwest, namely, a plant for 2,000 tons of ammonium perchlorate, and incidentally some chlorate to go along with it. That was incidental to it.

Our feeling therefore was with the real question about the market that our best bet would be to go along in the northwest with a minimum plant and sort of feel our way to see just how this market would develop. And I might [fol. 697] add I thank the Good Lord that we did it just that way because we aren't even running the northwest plant at capacity today; that is, the perchlorate plant.

Q. And that is a capacity of how many tons?

A. 2,000 tons.

Q. Whereas you were discussing here a capacity of 10,000 tons of ammonium perchlorate back on November 3, 1958?

A. That's correct.

Mr. Freed: Your Honor, I wonder if the reporter might read back the question and the beginning of Mr. Drake's answer?

(The reporter read the requested portion of the testimony.)

By Mr. De Lone:

Q. I don't know whether you finished your whole answer, Mr. Drake. We have been interrupting you too much perhaps.

A. There was one other small factor, and that was the consideration we had for renegotiation, which at that time we asked Mr. Willits to look into, as I recall it. But that I think was an incidental factor, important but incidental to the other two.

Q. Insofar as your projections of your profitability and your return on investment for the combined chlorate-perchlorate plant at Calvert were predicated on a price struc- [fol. 698] ture, renegotiation would be a factor as to the validity of those projections, would it not?

A. Yes, sir.

Q. If you will look at PX-148, the management committee meeting No. 90, November 13, 1958, there is a reference there under Capital Projects to Ammonium Perchlorate plant. "Mr. Drake stated Mr. Shanaman plans to have this submitted in time for the December 3rd board meeting."

Is that the 2,000 ton per year ammonium perchlorate expansion in Portland to which you have just made reference?

A. Yes, sir.

Q. In DX-11, the Appropriations Committee Meeting No. 12 of December 23, 1958, under item B, joint chlorate and perchlorate expansion following the initials PSW, 086P, is that reference to the Shanaman proposal or a sodium chlorate ammonium perchlorate plant at Portland?

A. PSW is Portland. The 086P designates Portland.

Q. PSW, what does that mean?

A. Pennsalt West.

Q. Now calling your attention to PX-151, management committee meeting No. 93, of January 9, 1959, the second item, budget, says the capital budget that was reviewed and approved at the Barclay meeting was reapproved for 1959. The only major addition was the West Coast chlorate plant. [fol. 699] What are we talking about there? Is that the same Shanaman 2,000-ton ammonium perchlorate plant?

A. We are still in the same bind that we were in earlier when we had this series of documents in which we referred

to chlorate-perchlorates, when we were all talking about the same thing.

I think unquestionably this is the same error that we made. We are obviously talking about the perchlorate and the chlorate, and there was a chlorate expansion at Portland at that time.

The Court: Perchlorate and sodium chlorate?

The Witness: Perchlorate and sodium chlorate for Portland.

By Mr. De Lone:

Q. As I understand it, Mr. Drake, and I believe there are stipulations on this which I can't immediately refer to, or interrogatories, the West Coast plant at Portland was increased in sodium chlorate capacity from a little over 12,000 tons to 15,392 tons, that having come on stream in 1959. And in the same period an ammonium perchlorate capacity was added at the same plant for 2,000 tons. Is that the thing that we are talking about in these minutes?

A. I believe it is.

Q. Mr. Drake, I show you Plaintiff's Exhibit 155, and [fol. 700] ask you if that is the press release announcing this same West Coast expansion which was under discussion in these meetings to which I have just recently directed your attention?

A. I believe it is.

Q. Mr. Drake, I call your attention now to Plaintiff's Exhibits 154 and 160, the latter being a letter from Mr. Logan to you dated February 27, 1959, the former the minutes of a Management Committee meeting held on Friday, January 23, 1959.

Mr. Logan's letter to you in the opening paragraph says:

> "We have brought up to date our information on power available at Brunswick, Georgia, as you and I discussed in New York last month."

Have you had a chance to look at the documents before I proceed any further?

A. I have looked at the document to which you are now referring.

Q. Do you recall the subject of a meeting or discussion

that you had with Mr. Logan in New York presumably in January, in light of his reference to "in New York last month"?

A. No. I think I testified in my deposition I do not recall the specific meeting. I think it probably was a chance meeting, probably at a convention, or the Chlorine Insti-
[fol. 701] tute meeting, which normally is held about the third week in January. Undoubtedly at that time this question arose about the Brunswick, Georgia, situation.

Q. Do you recall whether at any time subsequent to February 3, 1958, when you, Mr. Land, Mr. Shanaman and Mr. Logan had met in Philadelphia on this date, whenever it was, in January of 1959, you had had any further meetings or discussions with Mr. Logan about joint venture possibilities?

A. I do not recall any in that period.

Q. In Plaintiff's Exhibit 154, which is a meeting of January 23, or the minutes of a meeting of January 23, will you look at item 2 which makes specific reference to conversations had again been made with Olin Mathieson on the subject of a joint venture at Brunswick. Do you see that?

A. I do.

Q. Do you attend the Appropriations Committee meetings?

A. I do.

Q. Does that refresh your recollection in any way about your conversations with Mr. Logan in January of 1959?

A. As I stated earlier, the meeting to which John Logan refers undoubtedly took place at the Chlorine Institute. I am pretty sure it must have been at the Chlorine Institute because it would be something to which we would normally go, and since I believe that usually occurs in the third week
[fol. 702] of January my reference to discussions with Olin Mathieson in PX-154, item A-2, that reference is undoubtedly to the meeting, the chance meeting, I had with Logan in New York a few days before that.

Q. Did you at this same Appropriations Committee meeting No. 15 of January 23, 1959, discuss or give any thought to the possibility of a joint venture with Olin Mathieson on chlorate-perchlorate?

In that regard I call your attention to page 2, paragraph B-3.

A. I would appreciate it if you would read or someone would read back the first part of that question. I got a little lost.

(The last question was read by the reporter.)

The Court: Chlorate-perchlorate?

Mr. De Lone: That is the language I used. Sodium chlorate-ammonium perchlorate.

The Court: Let us have that clear so we do not have confusion in the record which you are suggesting exists in the document.

Mr. De Lone: Yes. Substitute that simply in the question without going through the rest of it.

The Court: You have directed Mr. Drake's attention to paragraph number 3?

[fol. 703] Mr. De Lone: Yes.

The Witness: The answer is obviously yes, we did discuss the possibility of a joint venture in the East with Mathieson, and as a result of such a discussion Dr. Lalande was asked to prepare some data.

By Mr. De Lone:

Q. The discussion to which you just now referred out of Appropriations Committee Meeting No. 15 was internal to Pennsalt entirely, just the Pennsalt people at that meeting?

A. That is correct.

Q. Reference to this request to prepare data, do you know whether the data was prepared? Can you tell from any of the notations—there are some longhand notations.

A. No. These all refer to checking up on LaLande to see whether he prepared them or not. Darned if I can remember whether he had or actually did prepare them or not. My guess would be that he di, but I am not supposed to guess, I believe.

Q. Did you subsequent to this meeting of January 29—I am sorry, of January 23 in PX-154, did you pursue further with Mr. Logan and/or anyone else of Olin the possibility of a combined sodium chlorate-ammonium perchlo-

rate joint venture with Olin other than as reflected in the letter PX-160 which I have already shown you, and also as reflected in the letter PX-163 which I now show you, being [fol. 704] a letter from Logan to Drake on April 7, 1959?

A. Before you show this to me, I was about to say that the only further discussion we had had that I can recall is an exchange of probably phone calls and letter referring to possible sites for a joint sodium chlorate-ammonium perchlorate venture.

Q. Did you ever settle on a site?

A. Not at that time.

Q. Have you ever to this day settled on a site for a sodium chlorate-ammonium perchlorate joint venture?

A. No.

Q. Did you pursue the subject any further as you recall of either a Pennsalt alone sodium chlorate-ammonium perchlorate plant East of the Rockies, or a joint venture with Olin in the same type of plant following this exchange of correspondence running at least up to April of 1959, any time after that did you pursue it further?

A. I would like you to repeat what it was that you are questioning did I pursue.

Q. I want to know whether you or Pennsalt to your knowledge pursued either a combined sodium chlorate-ammonium perchlorate plant on its own, or a joint venture in the same type of plant with Olin Mathieson subsequent to April of 1959.

[fol. 705] If my question is not clear make me ask it again.

The Court: Break it down into two parts. You asked a double question.

Mr. De Lone: Thank you, sir.

By Mr. De Lone:

Q. Did you pursue so far as Pennsalt alone is concerned, after April of 1959, the possibility of either constructing an ammonium perchlorate-sodium chlorate plant East of the Rockies?

A. The word I stumble a bit on is what do you mean by "pursue"?

Q. Did you progress it?

A. Did we give any more thought to it?

Q. I suppose it is not entirely out of your mind, but did you do anything? Did you have any meetings, discussions, make any decisions with reference to it?

A. I do not think we did anything of that sort. I could not honestly say it went completely out of our minds, I do not think that would be honest.

Q. That is not within my definition of "pursuit".

A. That is all I wanted to clarify, we were talking about the same thing.

Q. Using "pursue" in my sense, did you pursue the combined chlorate—the combined sodium chlorate-ammonium perchlorate plant joint venture with Olin idea subsequent to [fol. 706] this plant site discussion in the spring of 1959 that you previously referred to?

A. No. There was a void between roughly April of 1959, when there seemed to be no further consideration.

Q. Mr. Drake, when did the subject of a chlorate plant in the East, either alone or jointly, when did the subject of a chlorate plant in the East, without regard to how it was to be accomplished, next become an active one as you recall it and under what circumstances?

In that regard I show you PX-172, 173, and 174.

A. I was out on the West Coast in the fall of 1959 visiting in the Northwest. During that time Fred Shanaman raised the question, "What has ever happened to the thought we kicked around about chlorates with Mathieson? I had been supplying some material for them for an exploratory market study, now they have asked for 3,000 tons for the following year, 1960, and I can sell those 3,000 tons," or this is the gist of his discussion, "Is anything going to happen with Olin Mathieson, and if not I don't want to supply them with the 3,000 tons."

That is reflected in my memorandum to Land and Dr. LaLande.

Q. That 3,000 tons of sodium chlorate—you mentioned "chlorates?"

[fol. 707] A. He asked about the chlorates. I spoke of chlorates loosely, I am afraid. Obviously he is talking about sodium chlorate. That is reflected in PX-172.

I asked, and I think this is important, I asked Land and

LaLande to dust off their files and plan to discuss this with me on Thursday, November 19.

Q. Do you recall whether it was so discussed on Thursday, November 19?

A. In the meantime Mr. Walker, who was then an administrative assistant to me, I asked him to bring this whole picture up to date as best he could, which he did in his memorandum to me dated December 14, 1959, which is marked PX-173.

Q. Incidentally, when did Mr. Walker become your administrative assistant?

A. A short time before that, and I think in fairness to him I should add that the purpose of this request to him was twofold. One, I did want to get boiled down what the present status of this might be, and secondly, I wanted his boiling down as a part of finding out what his thinking might be, he looking at this from an entirely fresh viewpoint.

Q. From what you have said, I take it he had had no previous contact with this matter at all?

A. He had not, to my knowledge. The assignment of an [fol. 708] administrative assistant is partially a training assignment, and one of the training steps—I think this is important—was to see how the fellow thought, how he could do a thing like this. So the purpose was twofold.

Upon receipt of that summary, actually nothing happened. We did not have the meeting which I had called for December 17th, I believe it was.

Q. PX-172 has reference to "Discuss this with me on Thursday, November 19."

A. November 19th. And the sequence of events which is next brought out in PX-174 was a memorandum from Mr. Hugh Land, who was then general manager of the Industrial Division East, in which he refers to the November 17th meeting, which we didn't hold, and then summarized in his own estimation certain observations regarding chlorate in the East.

[fol. 709] The Court: Mr. De Lone, I don't want to cut short your presentation in any way, but are you adding much to your case simply to have Mr. Drake make a summarization of these papers? They do speak for them-

selves. If he can testify to matters not reflected in the papers, then I can understand the significance, but simply to give a summarization of what the papers contain doesn't seem to me to further the situation.

Mr. De Lone: I agree with your Honor. I didn't mean to have a re-reading just of the exhibits, and I will try to avoid that.

By Mr. De Lone:

Q. Mr. Drake, did you come then to have a meeting with Olin Mathieson on this subject of a possible joint venture in sodium chlorate?

A. Yes.

Q. Do you know how that meeting was set up? Are you able to fix the time when it was set up?

A. It was early in January.

Q. It was set up early in January?

A. I believe so.

Q. The meeting itself is reflected in Plaintiff's Exhibit 186, which I think you have there, is that correct?

A. That is January, 1960.

The Court: You are speaking of the meeting of Janu-
[fol. 710] ary 21, 1960?

Mr. De Lone: Yes, sir.

By Mr. De Lone:

Q. Will you look at the memorandum of the meeting of January 21, 1960. Have you a copy of it there?

A. I do.

Q. Can you add anything to Mr. Clem's minutes of what transpired at that meeting? Does that give the essence of what went on as you remember it?

A. I believe it reflects the discussions at the time of that meeting.

Q. Next, so far as you are concerned, was the signing of the letter of intent, or the letter agreement of February 11, 1960, which is PX 175, is that correct?

A. Yes, sir.

Q. Mr. Drake, there has been mention here of the fact that in these meetings Pennsalt brought some figures to the meeting of January 21. There has been some discus-

sion of that in court. Do you recall whether those figures concerned a sodium chlorate plant or a plant which would produce both sodium chlorate and ammonium perchlorate?

A. As I recall it, they referred only to sodium chlorate.

Q. And as constructed, does the plant of Penn-Olin have any facilities for making ammonium perchlorate?

[fol. 711] A. None whatsoever.

Q. Mr. Drake, I show you Plaintiff's Exhibit 244, which bears in the upper left-hand corner the legend, "Approved, 8-3-60," and ask you what that document is, if you know.

A. That is a summary which we make up prior to a Board meeting, which we send to the members of the Board for their consideration prior to request for action at the ensuing Board meeting. This one deals obviously with the investment in the Penn-Olin Chemical Company, Pennsalt's investment as well as the total investment.

Q. Did you take this subject to the Board with this memorandum in August of 1960?

A. I did, and they approved it.

Q. I note on the memorandum itself it shows return on investment, before-tax basis, 15% to Penn-Olin, 25% to Pennsalt. Would you explain the difference?

A. Yes. This is extremely important to the whole venture as I see it. The only way this is made possible, insofar as Pennsalt is concerned, is that in a minimum amount of equity the two partners can invest in this joint venture and borrow the substantial portion of the capital required to build and operate the plant. The leverage that you get on the minimum investment is reflected in the 25% return on Pennsalt's investment of $1,000,000, as against only [fol. 712] 15% on the overall project, these both being before taxes.

Another factor is that you do not in a joint venture of this nature, when it is 50-50 owned, need to reflect on your own balance sheet the obligation of the jointly owned subsidiary. This is another way, in a sense, of borrowing money without having to reflect it on your balance sheet.

By the Court:

Q. Is it too much of an accounting question to ask you whether it is not customary to reflect the obligation of a subsidiary in some sort of a notation on the balance sheet?

A. Sometimes it is done. Normally, on a 50-50 venture I believe more times it isn't than that it is.

Q. It's the sort of thing, though, that you would normally expect any informed person, or a person wishing to be informed, to make inquiry about, isn't it?

A. Well, technically the obligation is not to the parent; it is only to the subsidiary; and that is the basis on which the lender makes his loan.

Q. Yes, of course; the credit of the parent is not involved. That credit is affected by the value of the investment in the subsidiary.

A. I know there are occasions, however, where a footnote on the balance sheet is made. That has happened. Of course, when you have more than 50% ownership you [fol. 713] would have to do it.

Q. You consolidate them?

A. Yes.

By Mr. De Lone:

Q. Subsequent to your obtaining approval from the Board on August 3, 1960 of Penn-Olin Chemical Company, did you have occasion to meet with the Olin personnel with reference to the future of the joint venture, in the course of a few days thereafter, in August, 1960?

A. We certainly did.

Q. What was the subject of that meeting, and what transpired?

A. The subject of that meeting was, should the project be continued, and the question that was raised, principally on the part of Olin Mathieson, which they conveyed to me —I happened to be up in Maine at the time and came down for the meeting with Mr. Osborne and his associates—they were concerned with several items. First, the return on investment. Secondly, the action of the Hooker-Oldbury combination to offer five-year contracts in the southeast, which in itself was to our minds a reflection of the added competition that we were bringing forth, but nevertheless if it held any water it might keep us out for a period of five years.

And, of course, the third topic which was at least [fol. 714] touched on lightly was the Justice Department's interest in the venture.

Those were the three items.

Q. As a result of that meeting was there any change made in the Penn-Olin setup or plan? I show you in that respect PX257.

A. Yes, there was. We changed somewhat the scope of the project and in so doing reduced the total investment by about $300,000, which in turn increased the overall return from the original 15% to 19%, and our share, as well as Olin Mathieson's share, return from 25% up to 31%, which, of course, made the project look better from a return on investment standpoint.

Q. Do you recall what was eliminated in order to get this reduction in total investment of some $300,000?

A. As I recall it, it was mostly drumming facilities.

Q. Does the plant as constructed have any drumming facilities?

A. I don't think so.

Q. I note too, Mr. Drake, that in PX 244 it shows a capacity of 25,000 tons in the first paragraph, and PX 257 shows 26,500.

A. That's correct.

Q. That too would have the effect——

[fol. 715] A. On the review of the project they found that they could go up to 26,500, where originally they were more conservative on the 25,000.

Q. Did you then take 257 to your Board for approval?

A. I did, and they approved it. I asked at that time for $1,500,000 instead of the original $1,000,000.

Q. Mr. Drake, in your arrangements and discussions with the personnel of Olin, or the personnel of Penn-Olin, in which you participated, has there been any agreement or understanding with reference to any limitation on where Pennsalt may operate with reference to the sale of sodium chlorate or with reference to where Penn-Olin may operate with reference to the sale of sodium chlorate?

A. Absolutely no, and for a very good reason. The responsibility for the sale of the output of the Penn-Olin plant, as we have developed it, is that of the Olin Mathieson Chemical Company. The responsibility for the sale of our own plant at Portland is that of Pennsalt Chemicals Corporation. Now, if we are to assign those responsibilities we can't say, "You can do this but . . ." They must

have the responsibility and have the responsibility to sell the output of that plant, either plant; that is, Olin Mathieson in the case of the Penn-Olin plant, and the Pennsalt organization in the case of the northwest plant, anywhere they can sell it.

[fol. 716] Now, practically, if they can sell it close by they are going to sell it close by because they won't have to eat up freight. If they have to go far afield, they will go far afield, I hope.

Q. Mr. Drake, did the management of Pennsalt—and would it be fair to say that the management of Pennsalt and Mr. Drake are somewhat synonymous since 1955?

A. I have been instrumental in the operations of the company, if that's what you mean.

Q. Did the management of Pennsalt ever approve, since 1955 when you became its executive vice-president, either an appropriation request or an item for inclusion in the corporation's plan for future growth, a five-year plan, a sodium chlorate plant for Pennsalt alone at a location east of the Rockies?

A. No, sir.

Q. Did the management ever similarly approve an ammonium perchlorate plant for Pennsalt alone in an area east of the Rockies?

A. No, sir.

Q. Is the same true with reference to a combined sodium chlorate-ammonium perchlorate plant east of the Rockies for Pennsalt alone?

A. The same is true.

[fol. 717] Q. Has anything occurred since 1960 which would have induced you to approve such a project, any one of those three that I have mentioned, were it not for the existence of Penn-Olin?

A. No, sir.

[fol. 718] The Court: I don't understand that last question. Will you read it back.

(The last question was read by the Reporter.)

The Court: I thought all of your preceding questions presupposed an individual venture.

Mr. De Lone: They did. Obviously my last question is

not clear, and I think I had better pursue it further then.

The Court: I don't know what the significance of the answer is if I don't understand the significance of the question. But let it stand if you wish.

Mr. De Lone: It has been answered now. I think I had better pursue it further so we can clear it up.

By Mr. De Lone:

Q. Mr. Drake, has anything occurred since February 11, 1960, which has made any one of these projects more attractive?

The Court: Which projects are you talking about, the individual effort?

Mr. De Lone: The sodium chlorate plant alone, an ammonium perchlorate plant alone, and alone—I had better start again.

The three projects I have in mind are a sodium chlorate plant for Pennsalt alone east of the Rockies, an ammo- [fol. 719] nium perchlorate plant for Pennsalt alone east of the Rockies, or a combined sodium chlorate-ammonium perchlorate plant for Pennsalt alone east of the Rockies.

By Mr. De Lone:

Q. Has anything occurred since the beginning of 1960 that has made any one of those three projects more attractive to Pennsalt than they were at the beginning of 1960?

The Court: State the grounds of your objection, if you have one.

Mr. Freed: The government objects to that question on the grounds it is too speculative, particularly in light of the testimony of the witness that no consideration was given to these projects once the joint venture agreement had been entered into.

If Mr. De Lone can lay a basis for the corporation having considered these projects then perhaps there is a basis for an answer.

The Court: I will overrule the objection and consider it in the light of all the evidence.

By Mr. De Lone:

Q. Can you answer the question now, Mr. Drake, or would you like it repeated to you?

A. Nothing has happened since the early part of this [fol. 720] year, January, I think you said——

Q. Mine was 1960.

A. Of 1960.

—that would have induced us to go ahead with any one of the three projects.

The Court: Mr. De Lone, was that the purport of the question which I said I did not understand?

Mr. De Lone: I thought it was.

By the Court:

Q. Is that the purport of your answer to that question I didn't understand?

A. Yes.

Mr. De Lone: I am afraid I misled both the Court and counsel for the plaintiff. I apologize for the awkward phraseology.

I have no further questions of the witness.

The Court: We will adjourn or take a recess until half past 2:00.

(At this point the trial was recessed, to reconvene at 2:30 p.m. the same date.)

[fol. 721] 2:30 o'clock p.m., The same day.

PRESENT:

As before noted.

The Court: You may proceed, Mr. Freed.

WILLIAM P. DRAKE, resumed.

Cross-examination.

By Mr. Freed:

Q. Mr. Drake, this morning there was a good deal of testimony about final decisions by Pennsalt in the field of sodium chlorate. Have you reviewed the papers and the records in this case to determine just how many final decisions, so-called final decisions, Pennsalt made in the area of sodium chlorate prior to 1960?

A. Yes.

Q. Can you tell us the number of final decisions, or the occasions on which final decisions were made in the field of Pennsalt's interest in sodium chlorate?

Perhaps to save you from the trouble of recalling specific instances I can address your attention to particular documents.

[fol. 722] You were shown this morning Plaintiff's Exhibit 66, which was a memorandum dated March 8, 1955. I believe you testified that that report resulted, as indicated by the handwritten notes at the top, in Pennsalt putting sodium chlorate to bed. Is that correct?

A. That is correct.

Q. Do you have before you Plaintiff's Exhibit 70? Plaintiff's Exhibit 70 is an extract from Management Committee Meeting No. 40.

A. I do not believe I have that. Somebody very kindly put these in numerical order. No. 70 is not here.

Q. It is dated July 3, 1956. I show you a copy of that exhibit and ask you whether sodium chlorate came out of bed in the middle of 1956 as far as Pennsalt was concerned?

A. Yes, and for a very good reason.

Q. Yes?

A. The Puerto Rican idea came into the picture. The Puerto Rican idea being maybe this is a way to do this, by putting the plant in Puerto Rico, and thus have a tax advantage which would make the return more commensurate with our standards.

Q. Following the raising of the Puerto Rico possibility what did Pennsalt do with respect to Puerto Rico?

A. Found it was impractical.

[fol. 723] Q. The decision on the part of Pennsalt was?

A. To put it back to bed.

By the Court:

Q. Before you leave this Plaintiff's Exhibit 70, at the same time when it was decided to look at the possibilities of a sodium chlorate plant in Puerto Rico you also determined, did you not, to have another look at the wisdom of such a plant at Calvert City?

A. Yes, I think that would be a natural thing to do, if for no other reason than the comparative propositions.

By Mr. Freed:

Q. When you testified that the Puerto Rico study put sodium chlorate back to bed, did it also put Calvert City back there?

A. I believe so.

Q. I next direct your attention to Plaintiff's Exhibit 71, which I believe you had from this morning. I believe your testimony this morning was that sodium chlorate was revived by the Oldbury announcement on December 17, 1956. Is that correct?

A. That is correct.

Q. It was that revival, triggered in the month of December, 1956, that caused the whole sodium chlorate subject to be opened again for the next year, is that correct, [fol. 724] until December 5, 1957?

A. In general terms, yes, I think that is correct.

Q. I believe you next testified that Plaintiff's Exhibit 102 was the final decision, or perhaps the third one now, with respect to dismissing sodium chlorate as a lone venture on the part of Pennsalt on December 5, 1957. Is that correct?

A. Yes.

Q. Do you recall when the possibility of Pennsalt's entering sodium chlorate in the East next arose?

A. This is Pennsalt alone now?

Q. This is Pennsalt alone, but addressing your attention to any kind of project which would involve the manufacture and sale of sodium chlorate in the East.

To refresh your recollection I would like to direct your

attention to Plaintiff's Exhibits 112 and 113, which are the draft of the press release dated February 5, that is the draft, and the final release February 11, 1958, when Pennsalt made an announcement of a possible chlorate facility at an unannounced location in the South.

Am I correct in recalling that your testimony was that this again brought the subject of sodium chlorate by Pennsalt alone, possibly in combination though with the product ammonium perchlorate, back into consideration?

[fol. 725] A. Yes, actually I think it was somewhat before this date of February of 1958 because I believe I testified that we had asked the Central Engineering Group to get some rough estimates on a perchlorate plant for Calvert City in conjunction with sodium chlorate.

Q. Can you recall when prior to February 5, approximately, that request was made?

A. No, I cannot.

Q. It was some time between the final decision of December 5, 1957, and the press release of February 5, 1958?

A. I believe it was.

Q. The consideration which began in early 1958 for a sodium chlorate facility in the East in conjunction with ammonium perchlorate lasted again until some time in 1959. Is that correct?

A. I checked these—Pardon me for looking at these but I am terrible on dates and I do not want to make a misstatement here.

Yes. That is correct.

Q. Directing your attention next, Mr. Drake, to the subject of Pennsalt's consideration of a joint venture involving sodium chlorate and also involving Olin Mathieson Chemical Corporation, I believe you testified—perhaps you can tell us. What was the earliest date that you know the [fol. 726] subject of a joint venture with Olin was discussed by representatives of Pennsalt and Olin?

A. That's the one I stumbled on this morning. I think it was some time in 1956 that it came to my attention through Fred Shanaman. Can I check these for just a moment?

Q. By all means. I believe there is a reference to it in Plaintiff's Exhibit 73, dated December 27, 1956, which contains the sentence, "Incidentally, the last time we talked

with Olin Mathieson about building a chlorate plant they told us they had investigated the possibility of building a plant in the East and that their cost figures, both capital and manufacturing, were surprisingly close to ours."

That document would fix the date of a prior meeting with Olin some time in 1956. Whether or not that was the first meeting we don't know.

A. That is the one I was trying to recall. I don't have the document here; I don't seem to be able to find it. Is this the Shanaman document?

The Court: What exhibit was it?

Mr. Freed: Plaintiff's Exhibit 73, a memorandum from Mr. Land to Mr. Drake, December 27, 1956.

Mr. De Lone: May I supply you one of these, Mr. Drake?

The Witness: I would like to look at it.

[fol. 727] I think this correctly sets in my own mind the first time I was aware of discussions with Mathieson about a joint plant.

By Mr. Freed:

Q. In an effort to determine the next occasion on which Pennsalt-Olin discussions regarding a joint venture were held, I call your attention to Plaintiff's Exhibit 97, a memorandum from Mr. Land to Mr. Lawson, dated November 8, 1957. This exhibit states in part, "Mr. Grogan has felt very strongly about such a plant and has had preliminary discussions with people such as Olin Mathieson on the possibility of a joint venture."

To your knowledge does that document indicate to you that following late 1956, additional discussions were held between Pennsalt and Olin regarding a joint venture?

Mr. De Lone: I object to the form of that question. It's a double question. He says to your knowledge, and then, does the document indicate to you. If you want the witness to construe the document, that is one question.

The Court: I will sustain the objection and ask you to reframe your question, Mr. Freed.

By Mr. Freed:

Q. Mr. Drake, does Plaintiff's Exhibit 97 enable you to tell us whether any joint venture discussions were held [fol. 728] between Pennsalt and Olin in the year 1957.

Mr. De Lone: I object to the form of that question. I think we should find out whether the witness is construing the document or giving us his own knowledge.

Mr. Freed: To your own knowledge, Mr. Drake, were there any such discussions?

The Court: Independently of this Exhibit 97, were there any discussions between Pennsalt and Olin Mathieson concerning a joint venture in the latter part of 1957? By latter part I mean to include October, November and December.

The Witness: My best recollection is no, other than this that is recorded here.

The Court: You are referring now to Plaintiff's Exhibit 97?

The Witness: Yes, sir.

By Mr. Freed:

Q. Does Plaintiff's Exhibit 102, Mr. Drake, dated December 5, 1957, refresh your recollection with respect to discussions that had taken place in the latter part of 1957 between Pennsalt and Olin representatives regarding a sodium chlorate joint venture?

A. It refreshes my memory to the extent that Mr. Shanaman talked with Logan about the sale of chlorates, and in that discussion, as recorded here, the inferences here, [fol. 729] I should say, in the last sentence of PX-102, that there was some discussion or there might have been some discussion about a joint plan with Olin Mathieson. That's what I draw from that.

Q. And those discussions would have taken place some time prior to December 5, 1957, but in the year 1957?

A. Yes.

Q. In the year 1958 it is correct, is it not, that you and Mr. Land and Mr. Shanaman had a discussion with Mr. Logan, of Olin, in Philadelphia respecting a joint venture with Olin Mathieson, is that correct?

A. That is correct.

Q. And in the early part of 1959, as shown this morning

by the correspondence that Mr. De Lone handed you, correspondence between yourself and Mr. Logan, there were again discussions between Pennsalt and Olin with respect to a joint venture, is that correct?

A. I would just like to look at that correspondence just to make sure that I am answering the proper question.

Q. Plaintiff's Exhibit 160 and Plaintiff's Exhibit 154, I believe both mention the subject of joint venture discussions between Pennsalt and Olin?

A. These are in reference to potential plant sites, Brunswick, etc? Are those the ones you are referring to?

Q. Plaintiff's Exhibit 160 is a letter dated February 27, [fol. 730] 1959, and discusses a possible plant site at Brunswick, Georgia?

A. Yes, this does indicate that there were further discussions with Mathieson.

Q. In the year 1959?

A. In the year 1959, early '59.

Q. Is it a fact, then, Mr. Drake, that sodium chlorate for Pennsalt has been a project which up to a joint venture agreement of February 11, 1960, was rejected and revived on numerous occasions, both as a lone venture on the part of Pennsalt and as a joint venture on the part of Pennsalt and Olin?

A. No, that is not true. It was rejected on the part of Pennsalt as a lone venture. I don't think it had ever been rejected as a joint venture because no plan of a joint venture had ever been developed.

Q. Then to restate my summary of your testimony, sodium chlorate was a project which for Pennsalt alone was rejected and revived on a number of occasions between 1955 and 1960?

A. Between 1955 and the end of 1957, I believe it was, when we made the decision not to go ahead. I don't think it continued on past December of 1957, as I recall it.

Q. I believe, sir, that you testified just a few minutes ago that the——

[fol. 731] A. This is a single venture now.

Q. This is a single venture on the part of Pennsalt involving sodium chlorate without ammonium perchlorate.

The Court: Now you expanded your question. He understood your questions to be sodium chlorate alone, Pennsalt

alone. That is the way I have been understanding this examination.

By Mr. Freed:

Q. In order to clarify my examination from here on I wish you would assume that when I refer to sodium chlorate unless I specifically say otherwise I mean any kind of a project involving sodium chlorate by Pennsalt alone.

The Court: I think you ought to specify the products that you are talking about in each question; unless you do we are opening the door wide for confusion.

When you are talking about projects by Pennsalt alone I think you should state that in your question.

By Mr. Freed:

Q. Is it correct, Mr. Drake, that between 1955 and 1960 Pennsalt considered, rejected, revived, reviewed, and rejected again on a number of occasions a project all by itself in the East involving sodium chlorate with or without ammonium perchlorate?

Mr. De Lone: I object to the form of that question. [fol. 732] It seems to me it is very confusing.

The Court: It seems to me it is clear enough.

By the Court:

Q. Do you understand the question? If you do not it will be restated. If there is any ambiguity in this I am sure Mr. Freed will be glad to restate it because I think it is clear to Mr. Freed what he has in mind and it seems to be clear to me what he has in mind.

A. Perhaps the best way for me to——

The Court: Why don't you have the question read back, and if you have any trouble with any of these questions say so.

(The reporter read as follows:)

"Q. Is it correct, Mr. Drake, that between 1955 and 1960 Pennsalt considered, rejected, revived, reviewed, and rejected again on a number of occasions a project all by itself

in the East involving sodium chlorate with or without ammonium perchlorate?"

The Witness: Technically again I believe that I must answer that question that insofar as reviewing, revising, rejecting projects, the only ones that fall within the category that I have just expressed, which includes the rejection of a project, is a sodium chlorate plant alone. I do not recall that within the date period that you mentioned a [fol. 733] combined chlorate-perchlorate plant was rejected.

By the Court:

Q. Now, so the record is clear, you have been asked about a period 1955 to 1960. In the interest of accuracy should that period be narrowed either from an early date or a late date, or were they studies and considerations and rejections going on sporadically during this period 1955 to 1960?

A. The last rejection of the sodium chlorate plant was at the end of 1957, as I recall it.

By Mr. Freed:

Q. Picking up at that point the consideration which Pennsalt on its own gave to a project involving sodium chlorate from 1958 through 1959 and up to the joint venture agreement of 1960 was in connection exclusively with a combined sodium chlorate-ammonium perchlorate project?

The Court: Speaking about East of the Rockies?

By Mr. Freed:

Q. East of the Rockies.

A. I think that is a correct statement.

Q. In light of the documents which we just have reviewed bearing on the question of joint venture, the subject of joint venture was discussed, negotiated, reviewed between Pennsalt and Olin in 1956, 1957, 1958, 1959, and 1960. Is that correct?

[fol. 734] A. No, it is not correct.

Mr. De Lone: I object to the form of the question "In light of the documents we just reviewed."

Mr. Freed asked about some—I just don't see how the witness could know what Mr. Freed has in mind in that reference. It may be that in light of the answer—

The Court: You want to withdraw your objection?

Mr. De Lone: I withdraw it.

By Mr. Freed:

Q. Would you explain your answer, Mr. Drake?

A. Yes. I think when you included "negotiated" you are encompassing an area which really does not belong in there. Would you restate that question, please?

Q. Beginning at least in 1956, and continuing until the joint venture agreement or the letter of intent of February 11, 1960, Pennsalt and Olin considered throughout this period the subject matter of a joint venture?

The Court: I want to interject here. I do not want to keep interrupting the cross-examination because I know you should have freedom, but you are asking the witness what Olin considered, and if you are asking about negotiations that is one thing, if you are asking about internal considerations that is something else, if you are asking about Olin's internal considerations that is something else again.

[fol. 735] I do think in the interest of clarity and having the facts stated as they are there should be a breakdown of something akin to what I am suggesting.

By Mr. Freed:

Q. Confining my question, Mr. Drake, to consideration by Pennsalt and discussions with Olin—

The Court: You have got two things in this question, but go ahead and we will keep these two subjects in.

By Mr. Freed:

Q. In discussing with Olin the possibility of a joint venture which would include the product sodium chlorate, such consideration on the part of Pennsalt and discussion with Olin began at least as early as 1956 and continued on and off up through 1960. Is that correct?

A. I think that is a correct statement. Might I add something to that, incidentally?

Q. Please do.

A. As you made the statement it is correct. I think it should be recognized for the record that the discussions with Olin for this entire period were not necessarily between what I would call representative people of either company who were in a position to discuss for those companies a matter such as a joint venture.

You gather what I am driving at?

[fol. 736] Q. Are you saying, sir, that some of the discussions were unauthorized, or is your statement confined to the fact that some of the people who conducted the discussion did not have authority to commit their corporations to a joint venture agreement?

A. First I would comment on that this way: Some of those discussions, particularly the early discussions, and even some of the later ones I think, were not between people, certainly on the part of Pennsalt, who could commit Pennsalt to any such venture.

Nor do I think in some cases they were directed to have these discussions. I think that is important to bear in mind when you encompass a whole area of discussions running from, I believe you said 1956 through the ultimate agreement.

Q. If we confine the time period so as to begin with the discussions which Mr. Shanaman had with Mr. Logan in the latter part of 1957, and continue up through the Shanaman-Land-Logan and Drake meetings in 1958, and the Drake-Logan meetings in 1959, are we then considering a period of time in which the people who carried on the discussions were authorized representatives of the companies, at least as far as Pennsalt was concerned?

A. The first meeting Mr. Shanaman had at which I requested him to give me a report on his meeting was the [fol. 737] first one he was authorized to have with Olin Mathieson.

Q. And beginning with—

A. From then I believe your statement is correct.

Q. Authorized as far as Pennsalt was concerned?

A. I believe your statement is correct.

Q: And prior to that time the meetings could best be characterized as exploratory, at least so far as Pennsalt is concerned?

A. With somebody either in Olin or Pennsalt, probably in Pennsalt, having an idea, "Maybe this might be a good thing."

Q. Mr. Drake, this morning reference was made during the course of your direct examination to Penn-Olin as a subsidiary.

Can you tell us what you mean by the term "subsidiary"?

A. It is a corporate entity, part or whole of or all of which is owned by the parent, in this case Pennsalt if it is a Pennsalt subsidiary.

Q. As you use the term insofar as it relates to partial ownership can you tell us how much of an interest the parent corporation must have in order for the so-called "subsidiary" to be a subsidiary, in your view?

The Court: In what kind of a context do you pose the question, a question of this sort? Is it in an accounting context, in the sense of a legal definition of some sort, to [fol. 738] satisfy a statutory requirement?

It seems to me that question is so broad and so vague that it really is not an appropriate question.

After all, this witness has not testified as an expert in the field of accountancy or in the field of corporation law. He is a business executive and he has used the term "subsidiary,"—I do not remember where he used it but it was certainly in some kind of a context, and if you can relate the question to the context in which the word was used it seems to me you can get a more meaningful type of testimony, rather than if we deal in abstracts which simply dangle from nowhere.

Mr. Freed: I will try to do that, your Honor.

By Mr. Freed:

Q. Mr. Drake, insofar as the annual reports of Pennsalt are concerned, how much stock interest need Pennsalt have in another corporation in order for that corporation to be reflected on your books as a subsidiary?

A. I don't know.

Mr. De Lone: I withdraw my objection.

By Mr. Freed:

Q. Mr. Drake, does your company have a stock interest in the Solar Salt Company?

A. Yes, sir.

[fol. 739] Q. What is the extent of that stock interest?

Mr. De Lone: Objected to.

The Court: State your ground.

Mr. De Lone: It is irrelevant to this case and exceeding the scope of the direct examination.

The Court: I think the witness has testified that one of the advantages, either direct or implicit, in having a 50% ownership was that the debt put on the Penn-Olin wouldn't be reflected in the balance sheet. I think this question may be pertinent to that subject. I will overrule that objection.

It may have some other pertinence but at least it seems to be pertinent to that extent.

Mr. De Lone: All the facts with reference to Solar Salt have, I believe, already been covered by stipulation.

The Court: The objection is overruled.

The Witness: I believe we own 50% of a class stock. I can't recall whether it is Class A or Class B.

By the Court:

Q. Let me ask you a question to clarify my own mind. You spoke about the fact, as I understood your testimony, that if there was a 50-50 ownership between Pennsalt and Olin Mathieson, that any obligation of Penn-Olin wouldn't be shown on the balance sheet of Pennsalt?

A. That's correct.

[fol. 740] Q. And there wouldn't be any corporate responsibility so far as Pennsalt was concerned for payment of any obligation which Penn-Olin put on its property?

A. No legal responsibility.

Q. Now let's suppose you have a wholly owned subsidiary of Pennsalt. By hypothesis, let's assume that Penn-Olin was 100% owned. If Penn-Olin had borrowed money, there wouldn't be any corporate responsibility so far as Pennsalt was concerned, would there?

A. If Penn-Olin were wholly owned by Pennsalt?

Q. That's right.

A. Yes.

Q. There would be a corporate obligation?

A. There would.

Q. Why would that be?

A. We would be obliged then to show it on our balance sheet and consolidate it.

Q. It seems to me you are telling me two things. You are saying you would be obligated to consolidate the wholly owned subsidiary?

A. Yes.

Q. And as a part of the consolidated obligations, you would reflect the liability of Penn-Olin. That's what you are saying.

[fol. 741] A. Of the subsidiary, right.

Q. I understand that. But I am asking you, insofar as corporate responsibility is concerned there wouldn't be any theory, would there, on which Pennsalt would be liable for the obligation which a wholly owned subsidiary undertook to pay?

A. I am not an accountant but I think there is a liability there.

Q. I am not an accountant either, but I should doubt it. Anyway, if it is important I will have to resolve that as I see it.

The Court: I have interrupted you again, Mr. Freed.

Mr. Freed: I appreciate Your Honor's interruption, and I would request that any time you feel a question is left open that you do interrupt.

By Mr. Freed:

Q. Mr. Drake, in order to explore a bit further the meaning of a subsidiary as far as Pennsalt is concerned, I would like to read to you from a letter dated September 14, 1960, to Robert A. Bicks, Esquire, Assistant Attorney General, Department of Justice, signed by Robert V. Massey, Jr., counsel for Pennsalt. In item 11 of that letter, the following two sentences appear:

"Pennsalt's only joint venture in this country since [fol. 742] July 1, 1950, has been its participation with Hooker Chemical Corporation and certain individuals in the ownership of stock in Solar Salt Company at

Salt Lake City, Utah. The total investment in this company, which is engaged in harvesting salt from the waters of the Great Salt Lake and selling it, amounts to about one million dollars, of which Pennsalt's share is about 36%."

Directing your attention to the 36% interest, in your understanding of the accounting practices used by your corporation, is a corporation owned less than 50%, and specifically 36% in the case of Solar Salt, considered to be a subsidiary?

Mr. De Lone: I object to that question. I thought what was considered to be a subsidiary was a subject that your Honor indicated should not be inquired into.

The Court: I am going to sustain the objection and see if I can ask a question which covers what you have in mind.

By the Court:

Q. Under the corporate accountancy policy of your company, is it customary for you to consolidate in your balance sheet, the balance sheet of Pennsalt, companies in which Pennsalt has less than a 50% interest?

A. No, sir.

[fol. 743] The Court: Is that what you had in mind? Is this getting somewhere? It doesn't seem to me to be right just to ask a person in a blanket way what do they consider a subsidiary and what do they not consider a subsidiary, unless it is tied in with some use of the expression in context. The portion of the letter from Mr. Massey to Mr. Bicks didn't use the word "subsidiary," as I listened to you.

Mr. Freed: That is correct, your Honor. If I may direct an additional question to the witness I think it may bring this out.

By Mr. Freed:

Q. His Honor's question to you, Mr. Drake, concerned a company owned less than 50% by Pennsalt. Is your answer the same with respect to a company like Penn-Olin, which is owned exactly 50% by Pennsalt? Are such companies kept off the balance sheet of your company?

The Court: Consolidated or unconsolidated, that is really what it is, isn't it?

Mr. Freed: That's right.

The Witness: Usually when they are 50%—we haven't had too many—they are not consolidated.

By Mr. Freed:

Q. Do you know the purpose that Pennsalt has for not consolidating a 50% owned company?

[fol. 744] A. I think the purpose is best exemplified by one of the principal features of the Penn-Olin venture, which is that the leverage that we get in our investment and the return thereon is not impaired by the debt that the subsidiary company, the jointly owned company, has to make the project feasible. Do you understand what I am saying?

Q. I do, sir.

The Court: I am not sure that I do.

Mr. Freed: I might say, your Honor, that my understanding of Mr. Drake's testimony comes from spending several days on depositions with him.

The Court: What I am interested in here is getting a good, accurate record which reflects the facts. I don't want to be supplying too gratuitous information which is going to impair the effectiveness of your cross-examination, but it seems to me, from what I know or think I know in the area in which you are examining, that the question of whether or not a company is consolidated or not consolidated, certainly for purposes of certified statements, lies in the realm of accountancy. I don't know that a company would have a choice to say to certified public accountants. Don't consolidate this 50% subsidiary, or, consolidate it.

That is where I am having my difficulty. I may be wrong about that; there may be an election on the part of the [fol. 745] corporation itself. But I suspect there are some accountancy principles which might guide or really determine that choice.

The Witness: You are correct, sir.

The Court: If you know that I am correct, you can say that I am correct. I am not trying to supply an answer

in this area but I do pose that as a possibility to you, Mr. Freed, if it is important, or to the defendants if it is important, because I want to get the facts as they should be.

By Mr. Freed.

Q. Mr. Drake, do you know whether in the case of a company in which Pennsalt has a stock interest, the criterion of consolidation or non consolidation on the balance sheet is whether or not Pennsalt is responsible, legally responsive, for the debts of that company, at least the debts to the extent of the stock interest?

A. That is not the only criterion.

Q. Is that one criterion?

A. It could be a criterion. I would emphasize again that I am not an accountant.

The Court: It seems to me you are getting into legal questions as well. I will postulate a situation, Mr. Freed, where a parent company owns 1% of the stock of a company. It could guarantee the obligations of that company and be legally responsible for them.

[fol. 746] On the other hand, I can suppose a parent company can own 100% of the stock of a subsidiary company and not be responsible for the legal obligations of the subsidiary company.

Unless I am all wrong in my concepts of corporate responsibility, that must be the answer. The whole purpose of a corporate establishment is to insulate a shareholder from corporate liability. That is one of the basic advantages of it. It is the advantage which would flow to me if I set up a corporation and owned stock in it. I would not be responsible, assuming that the company issued fully paid, non assessable shares, I would not be responsible whether I owned one share or 100% of the stock.

Certainly, as a matter of law, I should think that would be true so far as the corporate stockholder is concerned.

I am interjecting this because I do think that you are in the realm now of a legal area.

Mr. Freed: Your Honor, I was attempting by my questions to determine whether this witness had any facts upon which he based his description or designation of Penn-Olin as a "subsidiary." The purpose in this line of ques-

tioning was to inquire into the facts relating to a legal defense interposed by the defendants under which, on one hand, it is asserted that Penn-Olin is not a subsidiary for purposes of guaranteeing its debts, and is kept off the balance sheet for that reason.

[fol. 747] On the other hand, Penn-Olin is supposedly a subsidiary for the purposes of Section 7 of the Clayton Act. It was an effort to determine whether there was any common ground for defining a subsidiary that I asked this particular witness' opinion.

The Court: I think that again you are asking his opinion is it a subsidiary for the purposes of having it in the balance sheet of the owned corporation? Is it consolidated for purposes of Section 7 of the Clayton Act?

It seems to me those questions are essentially legal in character, and I don't think, in the absence of some background qualification, which hasn't been developed through Mr. Drake, that it is properly propounded to him. Mr. Drake might say, "I think it is a subsidiary for purposes of Section 7," or, "It is not a subsidiary for purposes of Section 7," but I don't see what that would have to do with my judgment.

In view of what I have said, do you want to pursue this further, Mr. Freed?

Mr. Freed: No. In view of your Honor's remarks on the subject, I would not pursue this particular line of questioning and we will treat the question of subsidiary as a strictly legal question.

The Court: I think it may be a factual question too, but the facts have been developed, haven't they, that is, that [fol. 748] this is a 50% owned corporation, Penn-Olin is a 50% corporation. Now, if there are other facts which you feel should go in the record which are pertinent to whether this whole transaction which is within or without the compass of Section 7, you develop those facts. I am not placing any limitation on the area of your development of the facts.

Mr. Freed: Thank you, your Honor.

The Court: We will take a ten-minute recess.

(At this point a brief recess was taken.)

[fol. 749] By Mr. Freed:

Q. Mr. Drake, I would like next to direct your attention to Plaintiff's Exhibit 146, which you discussed with Mr. DeLone this morning. This is the document which records the happenings at the meeting of November 3, 1958.

I believe it was your testimony that the whole investment by Pennsalt in this projected independent sodium chlorate-ammonium perchlorate project in the east depended on Pennsalt's ability to sell 10,000 tons of ammonium perchlorate.

Does that correctly summarize your testimony with respect to that document this morning, at least on this particular subject?

A. I don't think you can state it exactly that way. Obviously there was some dependency upon the sale of the chlorate itself; but the difference between whether it was an attractive project or just another chlorate project depended upon our ability to sell the 10,000 tons of perchlorate because that was the part of the venture that had the greatest profit margin in it.

Q. I believe you also testified that following the meeting of November 3, 1958, the information contained in Defendants' Exhibit 1, a memorandum dated November 11, 1958, caused Pennsalt's interest in ammonium perchlorate [fol. 750] to wane. Is that correct?

A. You are referring particularly to paragraph 3 of that exhibit D-1 in which I refer to the double accounting?

Q. I believe that was your reference this morning.

A. That is correct.

Mr. DeLone: So the record will be clear, I believe that is paragraph number 2 that has the double accounting reference.

The Witness: It is three to me; but it is numbered 2, but it is paragraph 3.

Mr. DeLone: Thank you.

By Mr. Freed:

Q. Did you say that a final decision with respect to this particular project was reached as a result of Defendants' Exhibit 1, or simply that this resulted in a decline of your interest in the project but the project continued?

A. I believe I said it was a waning interest.

Q. The interest had not terminated with the delivery of this exhibit?

A. If I testified to that I don't think I testified correctly. I don't think I said this was the final decision.

Q. Turning your attention to Plaintiff's Exhibit 148, the minutes of the Management Committee Meeting Num-
[fol. 751] ber 90, held November 13, two days after Defendants' Exhibit 1, does that document indicate to you that the southern chlorate-perchlorate plant was still alive?

A. It had a little breath left in it, but very little.

Q. Do you recall the memorandum dated December 31, 1958, from Marshall Ramstad to Mr. G. E. More, which has been marked Plaintiff's Exhibit 150?

A. I am not sure that I have that. Was that introduced this morning?

The Court: I think it has not been placed on your desk. It was not placed on mine.

By Mr. Freed:

Q. While we are getting the document can you tell us who Marshall Ramstad is?

A. I think he is a market research man for the Pennsalt of Washington, or what used to be Pennsalt of Washington, the Western Division, Northwest Division.

Q. Mr. G. E. More?

A. He now is the general manager of the Industrial Chemicals Division, West.

Q. And directing your attention to the last paragraph of Mr. Ramstad's memorandum to Mr. More, which states:

> "The news article is very optimistic or the MD-7-58 report is very conservative. However, it does indi-
> [fol. 752] cate that Pennsalt figures being used are on the right side of the fence for this type of program."

As you read Mr. Ramstad's remarks in Plaintiff's Exhibit 150, is he referring to Pennsalt's estimates with respect to the ammonium perchlorate picture?

A. I am sorry, but I don't know just what he is referring to.

Q. Perhaps if you would take a moment to read the document you could tell us.

A. I still don't know what "MD-7-58" project report is. I know it refers to ammonium perchlorate, a status report, but I do not know who made the report, or whether it is a report within our organization or outside of our organization. That is what I meant by I didn't know what or to what he was referring.

Q. Can you tell us from this document anything about the prospects of ammonium perchlorate as they appeared to Pennsalt on the date of this exhibit?

Mr. DeLone: I object to the form of that question. Now I want to be clear whether the question is asking the witness to construe the document, or whether it is asking for his knowledge?

The Court: I will sustain the objection to the question on the ground stated.

[fol. 753] By Mr. Freed:

Q. From your examination of this document, Mr. Drake, can you tell us the prospects for ammonium perchlorate as they appeared to have been known to Pennsalt according to Plaintiff's Exhibit 150?

A. You will change that——

The Court: Just a moment. Are you objecting?

Mr. De Lone: The same objection.

The Court: Are you not asking the witness to state whether the document reveals prospects of ammonium perchlorate as they then appeared to be to Pennsalt? Isn't that what your question comes down to?

Mr. Freed: Yes, it does.

The Court: If so isn't it simply asking the witness to construe the document?

Mr. Freed: That is my request to the witness.

The Court: Doesn't the document speak for itself?

Mr. Freed: I believe it does, and I will not labor the point further.

By Mr. Freed:

Q. Directing your attention to Defendant's Exhibit 11, the minutes of an Appropriations Committee Meeting Number 12 of December 23, 1958, is it not a fact that, Mr.

Drake, this capital appropriation request discussed in [fol. 754] Defendants' Exhibit 11 was submitted pursuant to the decision reached at the meeting of November 3, 1958, covered by Plaintiff's Exhibit 146?

A. Would you repeat the decision for me so I will have it clear in my mind?

The Court: Do you want to read the question back?

Mr. Freed: I can proceed further, Your Honor.

By Mr. Freed:

Q. I direct your attention, Mr. Drake, to Plaintiff's Exhibit 146, page 3, paragraph number——

The Court: Just a moment.

By the Court:

Q. Do you have that exhibit in front of you?

A. I am trying to sort it out.

Q. It is 146. It is a memorandum dated November 11, 1958.

A. I do not have it. I have about everyone else.

Q. You may use mine, if you like. Do you have DX-11? He is going to ask you about DX-11.

By Mr. Freed:

Q. It is paragraph number 1 at the middle of the page, beginning, "The Western Division will immediately initiate preparation of an appropriation request."

Do you have that reference, sir?

[fol. 755] A. I am sorry, but I don't. Somebody just handed me—This is Plaintiff's Drake Exhibit Number 32.

Q. It is the same thing.

A. What are you referring to?

The Court: Mr. Freed, is the record clear that Drake Exhibit 32 is the same as Plaintiff's Exhibit 146?

Mr. Freed: That is correct.

The Witness: This follows, in answer to your question, this appropriation summary, DX-11, follows Plaintiff Drake Exhibit Number 32.

By Mr. Freed:

Q. Which is Plaintiff's Exhibit 146?

A. Plaintiff's Exhibit 146, in which on page 3 it is stated:

> "The Western Division will immediately initiate preparation of an appropriation request for a 2,000 ton per year capacity ammonium perchlorate plant at Portland, Oregon."

That is correct.

Q. In other words, the appropriation request, Defendants' Exhibit 11, was submitted pursuant to the action of the meeting recorded in Plaintiff's Exhibit 146?

A. That is correct.

Q. Going back for a moment, Mr. Drake, to Defend-
[fol. 756] ants' Exhibit 1, which is the one-page memorandum from Mr. Eastman to Mr. Sloane, dated November 11, 1958, I call your attention to the last paragraph of that document in which the suggestion is made that the Technical Division might want to prepare an alternate case scaling perchlorate cost estimates from the 10,000 TPY.

I ask you whether Plaintiff's Exhibit 153, dated January 20, 1959, is in fact the cost estimate document which meets the description and recommendation contained in the last paragraph of Defendants' Exhibit 1?

A. I rather doubt it, from what I can read of it.

[fol. 757] Q. Mr. Drake, perhaps I can assist you by calling your attention to the fact that Plaintiff's Exhibit 146 discussed a combined chlorate-perchlorate plant at Calvert City which would involve 30,000 tons per year of sodium chlorate and 10,000 tons per year of ammonium perchlorate, as indicated in paragraph A-1 on the first page, is that correct?

A. Right.

Q. Next, Defendants' Exhibit 1 transmitted additional information with the recommendation that the tonnage of ammonium perchlorate be reduced from 10,000 tons per year to 5,000 tons per year, correct?

A. Right.

The Court: Excuse me. Doesn't it also do more than that? It speaks about 20,000 tons of sodium chlorate as contrasted with 30,000 tons which is referred to in PX 146.

Mr. Freed: That is correct, your Honor.

The Court: In other words, there is a stepdown in tonnage of both the sodium chlorate and ammonium perchlorate from D-1 to P-146.

By Mr. Freed:

Q. Is the Court's reading of Defendants' Exhibit 1 correct as you interpret it?

A. Yes.

Q. I ask you then whether Plaintiff's Exhibit 153, which [fol. 758] contains a number of tables for sodium chlorate and ammonium perchlorate, in fact carries out the recommendations of PX 146 and DX 1 in so far as it contains in Table 1 a sodium chlorate plant to produce 25,000 tons per year, and in Table 2 to produce ammonium perchlorate of 5,000 tons per year out of the 25,000 tons of sodium chlorate referred to in Table 1?

A. I am clear now, and I think it does.

The Court: Well now, I want to interject here.

By the Court:

Q. There is a variance, is there not, between the tonnage referred to in D-1, referring to the tonnage of sodium chlorate, which is 20,000 tons, and the tonnage of sodium chlorate referred to in PX 153, which appears to be 25,000 tons of sodium chlorate, is that right?

A. I noticed that the first time I looked at it; then I looked back and I thought I had corrected it in my own mind.

Now let's see. D-1 in paragraph 3 talks about producing for sale, as I understand it, 20,000 tons per year of sodium chlorate, producing for conversion to perchlorate another 5,000 tons of sodium chlorate. That was my interpretation. So that you then have a 25,000 ton per year sodium chlorate plant, of which 5,000 tons is converted into ammonium perchlorate.

[fol. 759] By Mr. Freed:

Q. With that explanation, the two documents, D-1 and Plaintiff's 153, would be consistent with one another, and Plaintiff's Exhibit 153 would in fact carry out the recom-

mendations of Plaintiff's Exhibit 146 as modified by Defendant's Exhibit 1, is that correct?

To rephrase my question in terms of the production amounts involved, on November 3, 1958 the decision was to prepare estimates respecting a 30,000-ton sodium chlorate plant, 10,000 tons of which would be converted to ammonium perchlorate, correct?

A. Right.

The Court: Which exhibit is that?

Mr. Freed: Plaintiff's 146.

Q. On November 11 the recommendation was made that the plant be scaled down to 25,000 tons per year of sodium chlorate, split 20,000 tons of sodium chlorate for sale, 5,000 tons for conversion to ammonium perchloarte, is that correct?

A. I believe so.

Q. And the estimates contained in Plaintiff's Exhibit 153 are those estimates, namely, a 25,000 ton per year sodium chlorate plant, 5,000 tons of which would be converted to ammonium perchlorate, is that correct?

A. I believe so.

[fol. 760] The Court: Well now, I am going to ask the witness a question because I want the record straight at this point.

By the Court:

Q. Get Defendants' Exhibit 1 before you. I am going to talk about two documents: DX-1 and PX-153.

A. Right.

Q. Directing your attention to D-1, paragraph numbered 3 on page 1, you construe that as referring to a 25,000-ton sodium chlorate plant?

A. Yes, sir.

Q. Of which 5,000 would be used for ammonium perchlorate?

A. Right.

Q. Now turn your attention to page 1 of PX 153, the first paragraph. Why would you not construe that paragraph as requiring the manufacture of 30,000 tons of sodium chlorate, of which 5,000 tons would be used for am-

monium perchlorate? It seems to me the interpretation which you place on D-1 would make consistent the interpretation which I have suggested of P-153.

A. Your Honor, I probably erred in reconciling the two with Table 1 rather than the first paragraph of the document, PX 153, simply because I can't read the first paragraph.

Mr. Freed: Mr. Drake——

[fol. 761] The Court: Just let the witness answer my question. He said he couldn't read on the copy of the exhibit before him what I was reading on the copy before me.

The Witness: Sir, the difference, I believe, is that this document here, D-1, speaks of producing for sale 20,000 tons per year, whereas this merely speaks of producing 25,000 tons per year.

The Court: Very well; that answers my question.

When you say "this" you are referring to P-153?

The Witness: Yes.

Mr. Freed: Before I proceed to a new subject, your Honor, do I correctly understand from the colloquy that has taken place that the three documents are reconciled in the Court's view by the testimony which Mr. Drake has given?

The Court: I was really speaking about consistency of interpretation by Mr. Drake of D-1 and P-146, and I understand the testimony of Mr. Drake, and his testimony seems to me reasonable enough as he has explained it. It didn't seem to me to be reasonable without the explanation when I looked at the two documents.

By Mr. Freed:

Q. Mr. Drake, I would like next to have you turn your attention to Plaintiff's Exhibit 111, which is the memorandum to the file from J. O. Logan, dated February 4, [fol. 762] 1958. Am I correct that this is the document to which you testified this morning that the substance of paragraph 3, regarding the agreement between Olin and Pennsalt, that that paragraph does accurately reflect the essence of your recollection of the meeting in Philadelphia between you, Mr. Shanaman, Mr. Land and Mr. Logan?

A. I believe I testified that to the best of my recollection the document in itself—I don't think I pointed out paragraph 3 necessarily—reflected as best I could recall it the gist of the meeting that we had with Logan.

Q. Then the entire document accurately reflected——

A. I said yes, except that I would not express it exactly the way he had expressed it, were I to write it.

Q. Mr. Drake, can you tell us as a matter of fact whether Pennsalt at any time subsequent to the meeting held in Philadelphia on February 3, 1958 took any definitive action or move in the chlorate or perchlorate field without consultation with Olin?

A. Internally or externally?

Q. Either.

A. Internally, certainly.

Q. Can you tell us the occasion or occasions on which Pennsalt took definitive action, or made moves in the area of chlorate or perchlorate without consultation with Olin? [fol. 763] A. I hate to quibble on this but I'm afraid I'll have to ask what you mean by definitive action.

Q. Can you recall any decisions made at any level of the company, following February 3, 1958, in which Pennsalt made any kind of a decision with respect to chlorates or perchlorates?

A. Yes. I think it was after this—I think it was after this—let me check. As I have testified earlier, throughout '58 we were looking at the possibility of a joint—when I say joint I should say combined—chlorate-perchlorate plant in the southeast. I think I am correct on the date.

While I am looking, obviously one definitive action that we took was to expand the plant in the northwest, which was early in '59, as I recall it, yes. Now, how definitive you can make the action, I don't know how you want to express it but obviously we were reviewing actively the combined ammonium perchlorate-chlorate plant for the southeast throughout 1958, which culminated in the waning of our interest at the end of '58, early '59, to which we referred earlier. Now, how definitive that action is I don't know, but that is the best answer I can give you.

Q. Am I correct, Mr. Drake, that as indicated in Plaintiff's Exhibit 146, there was a meeting on November 3, [fol. 764] 1958 at which the people present determined that there appeared to be an attractive return on a combined

venture by Pennsalt in sodium chlorate and ammonium perchlorate as a result of what then appeared to be a very high return on perchlorate?

A. That is what the document says.

Q. Is it correct that that is what the people at that particular meeting, as indicated by this summary of the meeting, believed?

A. I think the testimony that I have given has indicated that there was not complete agreement with this document, the contents of this document. I believe I have already testified to that effect.

Q. I don't recall your testimony, Mr. Drake, and I wonder if you could repeat the respects in which as of the date of this meeting the summary of the meeting appears to have been incorrect?

A. Well, for one example, I would refer you to the item number 5 on said document, PX 146, the characterization of the project as a gamble. I would then refer you down to Item 8, in which it refers to inconsistencies.

Q. Before you go further, sir, is it your testimony that the people at the meeting did not consider a chlorate-perchlorate venture as a gamble?

A. No, that isn't what I said.

[fol. 765] Q. Then Item 5, on page 1, does correctly express the sentiment of the meeting as of that date?

A. It is the sentiment of the writer of the document as to his interpretation of the sentiment of the meeting.

Q. Was his interpretation with respect to the gamble nature of the decision wrong?

A. No.

Q. Now with respect to Item 8, the major inconsistency referred to, is that inconsistency correctly set forth on page 4 of Plaintiff's Exhibit 146?

A. As best I can recall, I think this outlines the inconsistencies, yes.

Q. Can you tell us whether there is any respect, as you examine Plaintiff's Exhibit 146, in which the document fails accurately to record what transpired at the meeting?

The Court: Mr. Freed, again I think that when you examine a witness on a four-page document, single-spaced, you really ought, to the extent that there are significant statements in there, to ask the witness about whether what you consider to be the significant statements are accurate,

rather than ask a blanket question. It's pretty hard for a person on the witness stand to take a document—obviously he supposes generally it is accurate—a four-page, single-spaced document, and answer it out of hand without going [fol. 766] over it very carefully presents some difficulty.

You have something in here that probably you think of particular importance, or several perhaps. Ask Mr. Drake about them.

Mr. Freed: I will abide by Your Honor's observation. I might say that the only reason I asked the question in the general way I did is that this document was covered extensively during deposition of Mr. Drake, and my purpose before going to particular points——

The Court: What did he testify, that it accurately reflected what happened?

Mr. Freed: My recollection is that it did.

The Court: Is that what you want to establish? If so, I would leave it; but if you want to break down some of these things then it seems to me you ought to go to paragraphs why you or which you think are inaccurate.

By Mr. Freed:

Q. Mr. Drake, on page 2, paragraph numbered 4, the statement is made, "As the newest producer, Pennsalt should and could take leadership in (1) promoting sales aggressively; (2) extending existing uses; (3) developing new uses; (4) improving use technology. Technical service and application research personnel and facilities will be needed. Assembly of these assets should start immediately by the Industrial Division."

[fol. 767] Can you tell us whether that particular paragraph did represent the consensus of the meeting as of the date of the meeting?

A. The best answer I can give you to that specific question is—it may not be satisfactory but the best answer I can give you is that I must have been asleep if any such conclusion was reached in my presence.

Q. Mr. Drake, with reference to paragraph numbered 7, on page 2, can you recall the sentiment of the meeting being that, "A second follow-up announcement on this proposed Calvert City plant should be issued promptly to pre-empt the market from other interested companies, Solvay, Columbia Southern, Olin Mathieson, etc. Wording of the pub-

licity should be carefully chosen to avoid upsetting current pricing, particularly in perchlorates."

A. I do not recall any such conclusion.

[fol. 768] Q. Does your recollection enable you to state that no such conclusion was reached by the people at the meeting?

A. I cannot say that.

By the Court:

Q. You received a copy of this Plaintiff's 146 at or about the time?

A. Yes.

Q. You did not suggest to the writer or any of the distributees that a correction should be made, I take it.

A. No, I did not.

Q. Did you review it after you received it?

A. I am not at all sure, frankly.

Q. Would you in the normal course of events?

A. A document of four pages, normally I try not to work on. I might well have reviewed this. I will not say that I didn't.

Q. You have no independent recollection you did or did not?

A. I have no independent recollection. I would add only that as has been borne out, very few of these things were done.

By Mr. Freed:

Q. Turning your attention next to the near the bottom of the page, paragraph number 2, do I correctly recall your [fol. 769] testimony in response to Mr. DeLone's questions this morning that in fact in a general way, Mr. Drake, you did apprise the board on November 3, 1958, of the proposed plans for production and marketing of sodium chlorate and ammonium perchlorate in the East?

A. I believe I testified that I told the board that we were giving some thought to a plant, and, as has been my custom on any such thinking, I wanted to apprise the board of management's thinking as to this possibility. That is correct.

Q. Is it correct, Mr. Drake, that at the time of the meeting recorded in Plaintiff's Exhibit 146, and on the same date on which there also was a board meeting that Pennsalt's thinking and Pennsalt's planning was in the direction of

an independent venture to produce sodium chlorate and ammonium perchlorate in the East without Olin Mathieson?

A. Yes, I think that is a fair statement. We were still hoping that we could put it together ourselves, yes.

Q. Is it a fact, Mr. Drake, in January of 1959, during a chance meeting between you and Mr. Logan you again discussed with Mr. Logan the possibility of a joint venture between Pennsalt and Olin, this time in sodium chlorate-ammonium perchlorate?

A. PX-154 refers to my having talked with Olin Mathie- [fol. 770] son and reporting the same to the Appropriations Committee on January 23. That refers to a joint venture at Brunswick. Whether that specifically refers to a chlorate joint venture or a sodium chlorate-ammonium perchlorate joint venture I cannot swear to.

On the second page of the same document the issue was further confused by virtue of the fact that it states that Dr. LaLande has agreed to prepare data for discussion with Olin Mathieson re the economics of a joint venture in the East for a chlorate-perchlorate project.

I think this is the key. If Olin is not desirous of proceeding further with this joint venture Dr. LaLande agreed to submit to the committee data on Pennsalt doing a project alone.

Now, I refer to that because I do not recall whether the actual discussion with Logan was on chlorate alone or chlorate-perchlorate; it could well have been on chlorate alone. And as a result of our discussion in the Management Committee or the Appropriations Committee No. 15, bearing in mind that we had gotten these figures together on sodium chlorate and ammonium perchlorate, that the idea was to propose such a sodium chlorate-ammonium perchlorate to Mathieson when we next talked with them.

That is taking a long time to answer your question, but [fol. 771] I think for clarity, I hope it is for clarity, that is the best way I can answer it.

Q. Is it correct, then, sir, that following the meeting of November 3, 1958, at which an independent Pennsalt sodium chlorate-ammonium perchlorate project was planned you had a discussion with Mr. Logan at which sodium chlorate, perhaps ammonium perchlorate, was discussed, and after that meeting the appropriations committee of Pennsalt de-

termined to discuss with Olin doing the chlorate-perchlorate project in the East as a joint venture?

Mr. De Lone: I object to that as a triple question.

The Court: Read the question back.

(The last question was read by the reporter.)

The Court: If the testimony shows what was said or done at these meetings why don't you simply refer to the last meeting in which you are interested and not make your question argumentative. Say "in such and such a meeting did you do so," and the record will show what has been done, and if the record does not show it then your answer may lose its significance. But if you want to establish these facts, and they are not established, I think you ought to establish them one time. If they are established I do not see any need to make your question argumentative.

Mr. Freed: Thank you, your Honor.

[fol. 772] By Mr. Freed:

Q. Mr. Drake, is it a fact following your meeting with Mr. Logan the Appropriations Committee of Pennsalt determined to submit a proposed chlorate-perchlorate project for joint consideration by Pennsalt and Olin?

A. The way you state that I cannot say that it is a fact. Following the meeting with Mr. Logan, and which was reported by me to the Appropriations Committee, the only decision that was made at that time was to ask Dr. LaLande to prepare data for a possible discussion with Olin Mathieson.

By the Court:

Q. On the subject of chlorate——

A. On the subject of a joint venture for the sodium chlorate-ammonium perchlorate project.

Q. In the East?

A. In the East.

By Mr. Freed:

Q. Is it not a fact, Mr. Drake, that following this Appropriations Committee meeting you and Mr. Logan had an exchange of correspondence, as indicated by Plaintiff's

Exhibits 160 and 163, and possibly other conversations in which the prospect of a joint venture involving sodium chlorate was further discussed?

A. If those were mentioned in the correspondence to [fol. 773] which you refer I do not happen to locate them right at the moment, but if those are specifically mentioned I would say the answer is "Yes."

Q. Would you, Mr. Drake, examine the——

A. 160?

[fol. 774] Q. —document Plaintiff's Exhibit 160, which is the letter from John Logan to you dated February 27, 1959, which in the last paragraph discusses sound economics for chlorate production; and also Plaintiff's Exhibit 163, another letter from Mr. Logan to you regarding locations.

A. Neither of which refer to perchlorate.

Q. The only reference I see, sir, in either letter is in Plaintiff's Exhibit 160 to chlorate.

Mr. De Lone: I will agree the document says whatever it says. I object to questions about this back and forth about what is in the documents. If they are there, they are there.

The Court: Your general objection is overruled.

It is now 4:30, and I think we will recess until tomorrow morning, unless you would like to finish an area of examination before we recess for the evening, Mr. Freed.

Would you like to finish a certain area before we recess?

Mr. Freed: I would like to finish, Your Honor, and if possible to complete Mr. Drake's examination today. I believe it will put us all in a better position to conclude the case tomorrow.

The Court: I may have to take a few minutes off but let's—Well, let's continue now. How much redirect exam-[fol. 775] ination are you going to have?

Mr. De Lone: So far one question.

The Court: All right.

By Mr. Freed:

Q. Can you recall, Mr. Drake, from your examination of the correspondence whether the joint venture discussions between you and Mr. Logan covered anything more than sodium chlorate?

A. No, I cannot, and that is why I answered the previous question the way I did. I depend more on this than I do on my own memory.

By the Court:

Q. You are tapping the document?
A. The documents.

Mr. De Lone: Which documents?
The Witness: PX-160 and 163.

By Mr. Freed:

Q. I would next like to show you the minutes of the Management Committee Meeting Number 99, dated April 9, 1959, marked Plaintiff's Exhibit 164.

The minutes, Mr. Drake, refer to Roman numeral VI, "Southern Chlorate-Perchlorate Plant," and reads:

> "Mr. Drake advised that the joint venture potential location of Brunswick was now out of consideration [fol. 776] but that McIntosh, Alabama, was a possibility on which Mathieson will report further to him shortly."

Can you tell us whether this minute of your Management meeting refreshes your recollection or enables you to state whether your discussion with Mr. Logan concerned sodium chlorate or sodium chlorate-ammonium perchlorate?

A. With the possibility that the person recording this misused a title, and I think that is very unlikely, and in being consistent with my statement about the documents 160 and 163, if this is recorded here accurately then I must have talked with Mathieson about a joint sodium chlorate-perchlorate plant.

Q. Returning to Plaintiff's Exhibit 154, the minutes of the Appropriations Committee meeting on January 23, 1959, the minutes being dated January 29, is it not a fact that the Appropriations Committee determined that a joint venture in chlorate-perchlorate would be pursued with Olin, and if Olin was not interested the economics of the plant would then be considered for Pennsalt doing the project by itself?

Mr. De Lone: I object to that as repetitive, at least the first part, because the witness already said what they determined, in cross examination.

The Court: I overrule the objection. Your question is [fol. 777] directed to the last paragraph of Plaintiff's Exhibit 154?

Mr. Freed: The last paragraph, Your Honor, and the last sentence of that paragraph.

The Witness: I will be glad to give you the same answer I gave before. The decision that was reached at this time was to ask Doctor LaLande to prepare data for discussion with Olin Mathieson re the economics of a joint venture in the east for a chlorate-perchlorate project. That was the decision reached at that time.

By Mr. Freed:

Q. Is it correct that the committee decided to pursue the possibility of a joint venture with Olin and in the event that that did not materialize then it would reconsider a lone venture?

A. I do not think you can read that into that.

By the Court:

Q. What is the fact? You are being asked now what the committee decided.

A. I do not think the committee made that decision. The committee decided to ask LaLande to prepare data.

By Mr. Freed:

Q. Can you tell us whether as a result of your meeting Pennsalt in fact pursued a joint venture in chlorate-[fol. 778] perchlorate instead of a lone venture?

A. I believe I answered that in answer to your question regarding PX-164, that if the heading "Southern Chlorate-Perchlorate Plant" is accurately included in that document then I must have talked with Olin Mathieson about a joint chlorate-perchlorate plant.

Q. Assuming that the document is correct, and do you have any information that would indicate Plaintiffs Exhibit 164 is not correct?

A. I have no specific information that it is not correct, no.

Q. Then assuming that the facts stated in these documents are true, is it a fact that Pennsalt's decision to plan for an independent venture in sodium chlorate and ammonium perchlorate taken in November, 1958, was converted into a joint venture project with Olin following your discussion with Mr. Logan in January, 1959?

A. I think that is stated too strongly. You say converted into a project with Penn-Olin on a joint chlorate-perchlorate. I think that is stronger than the facts, as I recall them, dictate.

The discussion with Penn-Olin may have taken place, it did take place according to this, assuming that the recording is correct, but the fact that, as you stated it, I think [fol. 779] again is too strong to represent the conditions existing at the time.

Q. Is it too strong because in fact no such project materialized, or is there another respect in which my statement was too strong?

A. My recollection is that not too much concern was given to a joint, or, I should say, a combination of sodium chlorate and ammonium perchlorate with Olin Mathieson. They may have come into the discussions, but the principal discussion with Olin Mathieson has been on sodium chlorate.

The Court: I am going to have to take a five-minute recess. About how much more do you have, if I can inquire?

Mr. Freed: I see only another five minutes or so.

The Court: We will be back, then.

Mr. De Lone: Before you leave the bench, the witness used the word — twice in the last answer "Penn-Olin." I think it was a slip of the tongue. I think the witness meant Olin, and he said, "Penn-Olin."

By the Court:

Q. Is that the fact?

A. Olin Mathieson is what I meant to say or refer to.

Mr. De Lone: Thank you.

(At this point a short recess was taken.)

[fol. 780] By Mr. Freed:

Q. Mr. Drake, is it true that in the latter part of 1958 and the early part of 1959, consideration by Pennsalt of an independent sodium chlorate-ammonium perchlorate project became converted following your discussion with Mr. Logan into consideration by Pennsalt with Olin of a joint venture involving sodium chlorate?

A. No.

Mr. De Lone: Objected to as having been previously fully covered.

The Court: Overruled. The question has been answered.

By Mr. Freed:

Q. Mr. Drake, can you tell us in what respects the statement embodied in my question is wrong?

A. For the same reason that I objected to it before. Objected perhaps is not the proper word. The word "converted."

The Court: In the previous question the word "project" was used. This was a bit vague.

The Witness: The consideration on the part of Pennsalt going it alone on the sodium chlorate-ammonium perchlorate venture in the East waned, as I have testified in the past. At some point some consideration was given to a joint venture, as evidenced by the documents here, one document [fol. 781] being PX-164. Apparently some consideration was given to this sodium chlorate-ammonium perchlorate project or venture with Olin Mathieson.

What your question implies to me is that we had a project, that we were all set to go on, and then we all of a sudden stopped on that and started out with Olin Mathieson, and if that is what you are driving at, that isn't what happened.

Q. My question, Mr. Drake, was intended to confine itself to consideration by Pennsalt of an independent sodium chlorate-ammonium perchlorate project, not a decision, a final decision, to go ahead. My question is confined to Pennsalt's consideration of an independent sodium chlorate-ammonium perchlorate project, and the question is whether that consideration was converted into consideration of a joint venture with Olin?

A. Or did we possibly consider also the possibility of going ahead on the same type of project with Penn-Olin? Is that what you are saying?

Q. First of all, you used the term Penn-Olin.

A. I beg your pardon; Olin Mathieson.

Q. I'm afraid I do not understand your response.

The Court: Read the question back.

(The question was read by the reporter.)

[fol. 782] The Witness: I stumbled on this word "converted to", because I don't think it is accurate.

By Mr. Freed:

Q. Perhaps we can take this up one step at a time, Mr. Drake. In November 1958 Pennsalt decided at a meeting to consider and plan for an independent sodium chlorate-ammonium perchlorate project in the East, is that correct?

A. I would rather have you state that——

The Court: You don't ask the questions. You answer the questions, and you answer this as accurately as you can. Do you want the question read back?

(The question was repeated by the reporter.)

The Witness: The way you state it, no. Pennsalt decided to explore further the possibility of an independent sodium chlorate-ammonium perchlorate plant in the East.

Q. And in January 1959 you met with Mr. Logan and discussed with him the possibility of a joint venture involving sodium chlorate, is that correct?

A. Assuming that his heading on this memorandum is correct, I discussed with Olin Mathieson not just sodium chlorate but apparently also ammonium perchlorate.

Mr. De Lone: The witness indicated a memorandum. May we know which one he is referring to?

The Witness: The document is PX-164.

[fol. 783] By Mr. Freed:

Q. And following your meeting with Mr. Logan, Pennsalt determined that it would prepare data for discussion with Olin regarding the economics of a joint venture in the East of a chlorate and perchlorate plant, is that correct?

A. That is correct.

Q. And the Appropriations Committee Meeting No. 15, whose minutes are recorded in Plaintiff's Exhibit 154, decided that if Olin was not interested in proceeding with the joint venture in chlorate-perchlorate, then Dr. LaLande would return to the committee with data on Pennsalt doing that project alone, is that correct?

A. That is correct if you recognize this. This assumes that we decide to present the data to Olin Mathieson. But I don't believe the data ever was presented to Olin Mathieson.

Q. Is it correct that following this meeting you and Mr. Logan did discuss a joint venture which involved the product sodium chlorate?

Mr. De Lone: You say following this meeting. I object to that unless we know what meeting.

The Court: I think it is clear he is referring to the Appropriations Committee Meeting of January 23, 1959, in the report of January 29, 1959. Is that right, Mr. Freed?

Mr. Freed: Yes.

[fol. 784] The Court: That is Plaintiff's Exhibit 154. Is that the meeting you are referring to, Mr. Freed?

Mr. Freed: Yes, it is, your Honor.

The Witness: I hate to repeat myself but the only document that we have that would tend to clarify that is the document PX-164—I believe this is the only document—and I question the heading on it. If the heading is correct, then I did discuss sodium chlorate and ammonium perchlorate with Mathieson.

By Mr. Freed:

Q. And is it not a fact, Mr. Drake, that even if the heading is wrong, that Plaintiff's Exhibits 160 and 163, the correspondence between you and Mr. Logan, indicates

that you did discuss a joint venture at least in sodium chlorate?

A. That's correct.

Q. And the only question in your mind is whether that joint venture also included ammonium perchlorate?

A. Right.

Q. Now, can you tell us whether at any time following the correspondence and conversations with Mr. Logan, covered by Exhibits 154, 160, 163 and 164, Pennsalt ever again considered an independent venture in the East for producing and selling sodium chlorate, with or without ammonium perchlorate?

A. Without ammonium perchlorate I think there is no [fol. 785] question about it, we did not further consider it. With ammonium perchlorate I cannot answer you. I don't know.

Q. You don't recall?

A. No.

Q. Returning your attention, Mr. Drake, to Plaintiff's Exhibit 111, Mr. Logan's memorandum to the file dated February 4, 1958, can you tell us whether subsequent to the date of that meeting Pennsalt ever moved in the chlorate or perchlorate field without keeping Olin informed?

A. Yes, we did.

Q. Can you tell us what moves Pennsalt took following the date of this meeting, where Olin was not informed?

A. We developed internally data on sodium chlorate and ammonium perchlorate.

Q. And that data which you developed and which led to the action of the meeting of November 3, 1958, recorded in Plaintiff's Exhibit 146, was the subject of your discussion with Mr. Logan, assuming Plaintiff's Exhibit 164 correctly describes the joint venture discussions as covering both sodium chlorate and ammonium perchlorate, is that correct?

A. Did you say that data or those data, or did you say that subject?

Q. If I said that data I meant that subject.

Mr. De Lone: May I ask to have the question repeated?

(The reporter read the question.)

[fol. 786] The Witness: The answer is no.

By Mr. Freed:

Q. And if we amend my question to confine itself to the subject matter of sodium chlorate-ammonium perchlorate, rather than the underlying data, is the statement in the question correct?

A. Assuming this heading is correct in 164, as I have said several times, I must have discused with Olin Mathieson the subject of sodium chlorate and ammonium perchlorate. That is the only statement that I feel that I can make.

Mr. Freed: I have no further questions, your Honor.

Redirect examination.

By Mr. De Lone:

Q. Mr. Drake, do you have Plaintiff's Exhibit 163 before you, the letter from Mr. Logan to you dated April 7, 1959? And will you also get, while you are looking for it, Plaintiff's Exhibit 164?

A. Is that another letter from Logan?

Q. There are going to be four documents: Plaintiff's 160, Plaintiff's 163, Plaintiff's 164, and Plaintiff's 154.

A. I have the 154, 163 and 160.

Q. How about 164?

A. All right, I have it.

[fol. 787] Q. Had you received Mr. Logan's letter, PX-163, of April 7, 1959, before the Management Committee meeting reported in PX-164, of April 9, 1959?

A. The only marking I have on here is the Industrial Division, that I can read, which was received April 9.

Q. Can you tell from the text of PX-163, and the text of PX-164, whether your advice to the board on April 9, 1959, was pursuant to receipt of the letter which is PX-163?

A. I believe you said to the board. You meant to the Management Committee?

Q. I'm sorry, to the Management Committee.

A. Pose the question again, will you please?

Q. Can you tell from the text of PX-164 whether the advice you gave to the Management Committee meeting on April 9, 1959, was pursuant to the advice you had received from Mr. Logan in PX-163 and 160?

A. I believe it must have been pursuant to, because of

the reference in 163 particularly to McIntosh or Lake Charles.

Q. PX-160 had dealt with the high power costs at Brunswick, Georgia, had it not?

A. Yes.

Q. If the power costs are too high for a sodium chlorate plant, what does that mean with reference to the feasibility of a combined sodium chlorate-ammonium perchlorate plant?

[fol. 788] A. Power, as I think has been testified already, is a very major cost in sodium chlorate production, and the cost of sodium chlorate, in turn, is a major factor in the cost of ammonium perchlorate production. Furthermore, there is some power required for ammonium perchlorate. Therefore, the power factor on either sodium chlorate or ammonium perchlorate, singly or together, is a very real consideration in any evaluation of the profitability of a project containing either one or both of those products.

Q. If a site for a chlorate plant is eliminated, sodium chlorate alone is eliminated, because of high power cost, would that tend likewise to lead to the conclusion that a joint sodium chlorate-perchlorate plant should not be considered for the same site?

A. That is correct.

Q. Do you recall any other communication you had from Mr. Logan other than PX-160 or 163, on which you based your report to the Management Committee in PX-164, other than those two exhibits?

A. I do not.

Q. Do you recall anything more of the substance of any discussions you may have had with Mr. Logan in January, February or April of 1959, other than these two letters, PX-160 and 163, and what is indicated in the second para-
[fol. 789] graph of item A-2 of PX-154?

A. I do not.

Q. You were asked on your cross-examination about when someone authorized by Pennsalt had had discussions with Olin Mathieson which were authorized, and you made reference to the fact that the first instance of this, so far as you were concerned, was when Mr. Shanaman was authorized to discuss something with Olin and report to you. Would you look at PX-102 and tell me if that is the occasion to which you have reference?

A. That is correct.

Q. What was it that Mr. Shanaman was authorized to do with reference to discussion with Olin Mathieson on December 5, 1957?

A. He was authorized to talk with Olin Mathieson regarding the sale of chlorate out of the Portland production to Olin Mathieson for resale.

Q. And with reference to processing any discussion of joint venture, who was authorized to do that?

I'll withdraw that question. I think the document speaks for itself.

Mr. Drake, as the president and chief executive officer of Pennsalt, has it been in the period of 1955 to the present time your policy to seek——

[fols. 790-794] The Court: Don't lead the witness.

Mr. De Lone: I withdraw that. I have no further questions.

Mr. Freed: The Government has no further questions.

The Court: Now you are both finished with Mr. Drake?

Mr. Freed: The Government is, your Honor.

The Court: And you are finished with him, Mr. DeLone?

Mr. De Lone: Yes, sir.

The Court: You are excused.

. . . . . .

[fol. 795] Lawrence A. Adams, called as a witness by the plaintiff, in rebuttal, being first duly sworn, testified as follows:

[fol. 796] Direct examination.

By Mr. Copley:

Q. Mr. Adams, by whom are you employed?

A. American Potash & Chemical Corporation.

Q. What is your position with AmPot?

A. Treasurer.

Q. How long have you held this position?

A. Since 1944.

Q. Does American Potash have a sodium chlorate facility at Aberdeen, Mississippi?

A. It does.

Q. Could you tell us when that plant was constructed?

A. It went on stream the latter part of 1958.

Q. Do you know approximately when the construction of that plant began?

A. Late 1957.

Q. Are you appearing here today pursuant to subpoena issued by the Government?

A. I am.

Q. Did that subpoena call for you to bring with you documents relating to the decision of AmPot to construct its sodium chlorate facility at Aberdeen?

A. It did.

[fol. 797] Q. Did you bring with you minutes of the board of directors' meetings at which AmPot authorized the construction of its facility at Aberdeen?

A. I did.

Q. I would like to show you this paper and ask if it is one of the documents you brought with you, and if it is the extract from the board of directors' meeting of February 18, 1957?

A. It is.

Q. Would you read that portion of the extract into the record?

Mr. De Lone: If your Honor please, I object to that. I don't understand either the relevance or what this testimony is offered to rebut. It is some resolution of AmPot's board of directors.

The Court: What do you want, an offer of proof before this goes in?

Mr. De Lone: I think if we had an offer of proof we would be clear on where we are going.

The Court: There is no jury, but we will have an offer of proof if you like. Do you wish the witness withdrawn when the offer is made?

Mr. De Lone: No, sir, I have no feeling of the necessity of withdrawing the witness.

[fol. 798] The Court: What will the proof consist of, if admitted. What will be its rebuttal significance, Mr. Copley?

Mr. Copley: Your Honor, the proof which we propose to show is this, and I was beginning by asking Mr. Adams to read into the record the minutes of the board meeting

at which AmPot authorized the sodium chlorate facility at Aberdeen.

We have a report which has previously been displayed to the defendants, which was the basis for AmPot entering into the sodium chlorate business at Aberdeen. These are the two documents which I wanted to show to Mr. Adams this morning.

The defendants in this case have put in considerable evidence about return on investment. They have done this for the purpose of showing that Pennsalt and Olin combined to construct a sodium chlorate facility at Calvert because the rate of return on a lone venture was too low under its corporate policy to warrant an independenl operation.

We propose to introduce this rebuttal evidence showing that a competitor, AmPot, a competitor of these defendants in the sodium chlorate industry, constructed a sodium chlorate facility during the same period of time and in the same general geographic area that these two companies were independently evaluating.

[fol. 799] The Court: Is that to demonstrate a policy on the part of AmPot to seek a lower rate of return as a minimum than the rate of return sought by Olin Mathieson and Pennsalt? Or is it to show that the rate of return might have been greater to Pennsalt and Olin Mathieson than their forecast showed and that therefore their forecasts were not bona fide?

Let's assume that AmPot did go it alone, so to speak. How does that bear upon the defense testimony?

Mr. Copley: Your Honor, we do not believe that a low rate of return on investment justifies competitors or potential competitors in forming a combination not to compete.

The Court: You mean if their best estimates show that they had operated at a loss, they were obligated under the law to operate at a loss so as to be competitive?

Mr. Copley: No, sir, not at a loss. I don't believe that is the issue.

The Court: Well, at a marginal profit.

Mr. Copley: At some profit, your Honor.

The Court: Mr. DeLone, I am going to have to hear the testimony and evaluate it. It seems to me your objection is one of relevance, and that is one that we can best determine after we have heard it rather than before. After all,

in effect I am hearing the testimony now in bits. I think that I would like to hear the testimony and give it whatever [fol. 800] weight, if any, that I think it is worth.

Mr. De Lone: Very well, sir.

By Mr. Copley:

Q. Mr. Adams, would you read that extract of the board meeting of February 18, 1957 into the record?

A. (Reading)

"The chairman then referred to previous discussions with the directors and advised the meeting that after extensive market and engineering studies, it appeared desirable to construct a plant to manufacture sodium chlorate at Aberdeen, Mississippi.

"After full discussion, on motion duly made and seconded, it was resolved that the corporation purchase approximately 586 acres of land near Aberdeen, Mississippi, and construct thereon a plant for the production of sodium chlorate, as described at this meeting, at an estimated cost of $5,000,000."

Q. Was this board of directors meeting of February 18, 1957 the meeting at which AmPot authorized the construction of its sodium chlorate facility at Aberdeen?

A. It was.

Q. Mr. Adams, I show you a document which has been [fol. 801] marked Plaintiff's Exhibit 415 which is from Peter Colefax to the board of directors, and which is dated February 12, 1957.

Does this document come from your company files?

A. It does.

Q. Was it kept in the regular course of business?

A. It was.

Q. Who is Peter Colefax?

A. The president of American Potash & Chemical Corporation.

Q. Was he the president of AmPot on the date of this memorandum, namely, February 12, 1957?

A. Yes.

Mr. Copley: I would like to read into the record the first paragraph of this memorandum.

"We propose to build a plant near Aberdeen, Mississippi, for the initial production of 15,000 tons per year

of sodium chlorate for delivery to present and potential Eastern customers. The estimated cost of this facility is $5,000,000 and the total investment, including working capital, is estimated at $5,500,000. On the basis of the present market price of sodium chlorate the estimated return on the total capital investment [fol. 802] is 8.0%."

By the Court:

Q. Mr. Adams, do you know whether this 8.0% was before or after taxes?

A. It is after taxes.

Mr. Copley: I should also like to read into the record——

The Court: Excuse me.

By the Court:

Q. What would the estimated return on total capital investment be before taxes?

A. On a percentage basis?

Q. Yes.

A. On page 3 of the memorandum are the relative figures there.

Q. It would be roughly twice the 8%?

A. Yes. The taxes provide for Federal and also State income taxes.

Q. I suppose that is a matter of arithmetic anyway, to figure out.

A. I cannot per cent that fast from those figures.

Q. In other words, look at page 3, $437,000 is the 8% figure?

A. The 8% figure related to the total investment of five [fol. 803] and a half million.

Mr. Copley: I would also like to read into the record the last paragraph of this memorandum beginning on the bottom of page 4.

"We recommend that the board approve the sodium chlorate expansion project at its next meeting so that we may proceed without delay on detailed engineering. Time is important as we must promptly make a firm power contract with TVA in order that they may have the necessary power lines and substation approved and

installed by the time our plant should be ready to operate. This is planned for July 1, 1958."

By Mr. Copley:

Q. Is this proposal, Plaintiff's Exhibit 415 the one approved by the directors at a meeting of February 18, 1957?

A. It had been presented to the board and the board approved the plant based on this report.

Mr. Copley: Your Honor, I would like to offer into evidence Plaintiff's Exhibit 415.

The Court: This has not been offered in evidence yet? I thought this was in evidence.

Mr. Copley: No. This is part of our rebuttal case. It has been marked but not initialed by the Clerk.

[fol. 804] The Court: I see. Is there any objection?

Mr. DeLone: I assume that with this, as with all other exhibits, it would come in subject to objection in light of your Honor's ruling.

The Court: That is correct. Do we have a broad understanding that everything that has gone into evidence in the way of documentary evidence is subject to objection by either party?

Mr. DeLone: In brief, and with that thought in mind we thought we did not have to spend time with it.

The Court: That was your understanding?

Mr. Copley: That was our understanding.

The Court: It is admitted subject to the general understanding which we had as to pertinence.

Is it general admissibility or pertinence, Mr. DeLone?

Mr. DeLone: General admissibility.

The Court: All right. It is admitted subject to these reservations which the record shows.

(Plaintiff's Exhibit No. 415 previously marked for identification was received in evidence as "Plaintiff's Exhibit No. 415.")

Mr. Freed: Your Honor, it was our understanding that the reservation of objections did go to relevance and mate-

[fol. 805] riality, and not to matters which could have been cured——

The Court: I do not know what the record shows, but

whatever the record shows initially to be the understanding this paper will come in subject to that reservation.

Mr. Copley: We have no further questions of Mr. Adams.

Cross-examination.

By Mr. DeLone:

Q. Mr. Adams, will you turn to page 3 of PX-415, and in the last paragraph on that page it opens with the words:

> "While the return on this investment is not as attractive as some we have proposed there are a number of factors that must be taken into consideration."

Did American Potash Company, to your knowledge, at this time, February 12, 1958, have some general policy with reference to the return on investment which it sought in new projects?

If you do not know I hope you will simply say so.

A. As a policy matter, I do not know.

Q. Are you familiar with other projects that were in fact taken on by American Potash which did offer a more attractive return than this one?

[fol. 806] A. I cannot quote any return figures.

Q. You are the treasurer of American Potash?

A. Yes.

Q. I understand that you did not take part in the preparation of this memorandum, PX-415, that was Mr. Colefax, the president?

A. That is correct.

Mr. DeLone: No further questions.

Mr. Copley: No further questions.

The Court: You are excused, Mr. Adams.

Mr. Freed: Mr. War.

THOMAS L. WAR, called as a witness by the plaintiff, in rebuttal, being first duly sworn, testified as follows:

Direct examination.

By Mr. Freed:

Q. Mr. War, by whom are you employed?

A. The Pacific Engineering & Production Company of Nevada.

Q. Where is your company located?

A. Henderson, Nevada.

Q. What is your position with Pacific Engineering?

A. I am the Executive Vice President and Secretary.

[fol. 807] Q. How long have you held that position?

A. Since December 1, 1958.

Q. Prior to that time where were you employed?

A. By the American Potash & Chemical Corporation.

Q. Your position there?

A. I was the manager of administrative services for their Henderson plant.

Q. Mr. War, how big is Pacific Engineering?

A. In terms of people we have 63 employees at this time.

Q. Approximately what is the dollar volume of the assets of Pacific Engineering?

A. The assets are approximately $2,000,000.

Q. How about the sales?

A. Between one million and one and a half million dollars a year.

Q. As of the present time in what business is Pacific Engineering engaged?

A. In the manufacture and sale of ammonium perchlorate.

Q. Can you tell us when Pacific Engineering was formed?

A. It was incorporated in November of 1955.

Q. As of the present time what is its capacity for producing ammonium perchlorate?

A. Approximately 2500 tons per year.

[fol. 808] Q. Does Pacific Engineering contemplate any change in the activities which it has been conducting up to the present time?

A. We intend to expand our capacity and provide the manufacture of our own sodium chlorate.

Q. What size sodium chlorate plant do you contemplate building?

A. It will be rated at approximately 5,000 tons a year.

Q. Is there any concomitant increase in ammonium perchlorate?

A. Yes. Ammonium perchlorate will be doubled to approximately 5,000 tons a year.

Q. Can you tell us, Mr. War, why Pacific Engineering is increasing its capacity for producing ammonium perchlorate?

Mr. DeLone: Objected to.

The Court: Overruled. State your ground, Mr. DeLone.

Mr. DeLone: It is irrelevant.

The Court: Overruled.

The Witness: We feel that the demand for ammonium perchlorate is increasing to the point where we can successfully market the increased production.

By Mr. Freed:

Q. Can you tell us why the Pacific Engineering is em- [fol. 809] barking on the production of sodium chlorate?

A. Well, sodium chlorate is a raw material in the manufacture of ammonium perchlorate. We are presently buying it. We feel that we can manufacture it cheaper than we can purchase it.

By the Court:

Q. Does it take about a ton of sodium chlorate to produce a ton of ammonium perchlorate?

A. As a rule of thumb, yes, that's about right.

By Mr. Freed:

Q. When did Pacific Engineering decide to build a sodium chlorate plant?

A. In July of this year.

Q. When will your plant be completed?

A. We hope to have it finished during the first quarter of next year.

Q. Mr. War, can you tell us what the total investment in the expansion program for sodium chlorate and ammonium perchlorate will be?

A. The total investment for the entire program is between $1,500,000 and $2,000,000.

Q. In the production of sodium chlorate which your company contemplates, where will the process come from?

A. It is a process that we have developed.

[fol. 810] Q. Is it an electrolytic process or is it another?

A. It is an electrolytic process.

Q. Can you tell us where the money to finance the expansion will come from?

A. We borrowed it.

Q. From whom did you borrow it?

A. From American Cyanamid Company.

Q. Can you tell us briefly what the terms of that borrowing were?

A. We borrowed a sum of money which is evidenced by promissory notes secured by deed of trust on all of our assets.

Q. And the amount of the loan, approximately?

A. Approximately $2,400,000.

Mr. Freed. I have no further questions.

Mr. De Lone: Would your Honor indulge us for a moment?

The Court: Very well.

Cross-examination.

By Mr. Connelly:

Q. Mr. War, in connection wtih your testimony concerning the loan made from the American Cyanamid Company, in what business is the American Cyanamid Company engaged?

A. Manufacture and sale of chemicals.

[fol. 811] Q. When did you have your first negotiations with American Cyanamid on the subject of the proposed loan?

Mr. Freed: I object, your Honor. I don't see the relevancy.

The Court: I overrule the objection. I will hear the testimony and evaluate it in the light of the entire record.

The Witness: In February of this year.

By Mr. Connelly:

Q. Does the loan carry interest?

A. Yes, sir.

Q. At what rate?

A. 4½%.

Q. Are there any other terms and conditions of your loan arrangement with American Cyanamid other than those you have stated?

A. Its a long and involved document. Yes, sir, there are many other provisions.

Q. Does it have provisions other than those relating simply to the borrowing of money and the repayment of the loan? If so, will you state what those other provisions are?

A. Yes, there are certain options involved in consideration of the loan, one being that American Cyanamid has an option to license certain of our processes for their [fol. 812] use if they so desire, on the same terms as have been granted to other people.

Q. When you say to license, you mean to receive a license?

Q. To receive a license, yes, sir, and to make payments to us.

Secondly, they have an option to acquire all of the assets of the corporation at a minimum price, or a price based on a formula based on earnings, whichever is the higher. They have an alternative option to purchase common stock in the amount equal to that presently outstanding, so that they would own 50% of the common stock of the company.

Q. What is the approximate size of the American Cyanamid Company in terms of its dollar assets?

A. I don't know.

Q. Do you have any information as to the size of the company in terms of the volume of its sales?

A. No. I know it is an extremely large corporation.

Q. In connection with the development of the electrolytic process to which you have testified, did you personally participate in the work of that development?

A. No, sir.

Q. How long experience had you had with the American Potash Company before you went with Pacific Engineering?

[fol. 813] A. American Potash purchased the company in

which I was employed in November, 1955. I left them at the end of November, 1958.

Q. In the course of that period of time did you become generally familiar with the manufacturing productive facilities and processes of the American Potash Company?

A. Only in a lay fashion. I am not a technical man.

Q. What did you do between the time when you left American Potash Company and formed your association with Pacific Engineering, or was there any lapse of time?

A. There was no lapse of time.

Q. I am not sure whether you testified, Mr. War, as to where your ammonium perchlorate plant is located.

A. It is located near the town of Henderson, Nevada.

Q. And where is it that your proposed sodium chlorate plant is about to be constructed?

A. At the same location.

Q. Am I correct in understanding that the Pacific Company has been in the business of producing ammonium perchlorate since 1958, or does it go back before that?

A. It was shortly after that. We put our first pilot cells on the line in December, 1958. There was no actual production until 1959.

Q. By the way, I neglected to ask you, Mr. War, with [fol. 814] reference to the process, the electrolytic process that you have for the production of sodium chlorate, is that a new process?

A. It is difficult to say new about a process like that, sir. The manufacture of sodium chlorate by electrolytic process is of course well known for many years. We think we have some innovations, let us say.

Q. Does your company hold some patents on that process or those processes?

A. It does not now, no.

Q. During the period of time that you have been producing ammonium perchlorate from sodium chlorate, what has been your source or sources of supply of sodium chlorate?

A. We have purchased sodium chlorate through a distributor, Chipman Chemical Company. They have supplied it to us from three manufacturers: Pennsalt, American Potash, and some French material that I believe was manufactured by Pechiney.

Q. Do you know roughly what proportion of the total supply that you have had has been received from the French or foreign source?

A. I don't, no.

Q. I take it, Mr. War, that upon the completion of your sodium chlorate plant you contemplate that the Pacific [fol. 815] Engineering Company will cease to be a consumer or a purchaser of sodium chlorate in the sodium chlorate market, is that right?

A. That is correct.

Q. To what class of customer, Mr. War, do you sell ammonium perchlorate?

A. We sell to manufacturers of solid rocket fuels.

Q. Manufacturers, I take it, of solid rocket fuels ultimately destined for the Government of the United States?

A. That's correct.

Q. That is the entire sale of your ammonium perchlorate?

A. Yes, sir.

Q. Has that been true during the entire period that you have been producing and selling ammonium perchlorate?

A. Yes, sir.

OFFERS IN EVIDENCE OF DEFENDANTS' EXHIBITS NOS. 1 THROUGH 49 AND PLAINTIFFS' EXHIBITS NOS. 416 THROUGH 428, AND COLLOQUY THEREON

Mr. Connelly: That's all.

Mr. Freed: The Government has no further questions, your Honor.

(Witness excused.)

The Court: Do I understand that both sides have now rested, save for the introduction of documents?

Mr. Freed: Your Honor, the Government would like an opportunity to examine in detail the lists shown to it by the defendant this morning in order to prepare their own list of [fols. 816-818] documents for offering into evidence to be sure there are no duplications, and in an effort to secure sufficient number of copies.

We would like an opportunity, if we could, to submit our lists or the documents themselves to the reporter or

to the clerk by two o'clock if we could, no later than two o'clock.

The Court: You will have need of me in the courtroom then at two o'clock to formally rest. Is that your desire?

Mr. Freed: Your Honor, we would see no need to have the court in session at that time, and we would propose to rest at this time and simply submit the list to the clerk afterwards.

[fol. 819] — Defendants' Exhibits

DX-1	11/11/58	Eastman to Sloan (re Perchlorate)
DX-2	8/ 1/60	Staples to Land
	8/ 9/60	McGuire to Karr
DX-3	6/18/53	Drake to Logan
DX-4	7/ 9/53	F. C. Shanaman to Drake
DX-5	12/ 1/54	Drummond to Drake
DX-6	6/26/53	F. C. Shanaman to Drake
DX-7	12/20/57	Willits to file
DX-8	7/ 9/58	Drake to F. C. Shanaman
DX-9	7/18/58	F. C. Shanaman to Drake
DX-10	7/18/58	Karr to Fred Shanaman
DX-11	12/23/58	Appropriation Committee Meeting No. 12
DX-12	8/23/56	GTC (Collins) data
DX-13	3/26/57	Gardiner to Wojcik
DX-14	1/17/58	Huntington to Evans
DX-15	1/31/58	Evans to Woodard
DX-16	1/31/58	Logan to Frost
DX-17	2/ 3/58	L. M. Shanaman to Olin (Att. Frost)
DX-18	4/ 8/58	Theobald to L. M. Shanaman
DX-19	5/ 6/58	Smart to Otis Tucker (Brunswick)
DX-20	12/ 9/58	Frost to L. M. Shanaman
DX-21	12/11/58	Gardiner To Wojcik
DX-22	4/14/59	Frost to Logan

[fol. 820]

DX-23	4/21/59	Logan to L. M. Shanaman
DX-24	5/ 1/59	Frazier to King
DX-25	7/28/59	Shively to King
DX-26	8/18/59	Brudeshaw (TVA) to Stein
DX-27	8/19/59	Teletype re C. & E. News
DX-28	9/ 4/59	Burdeshaw (TVA) to Stein
DX-29	9/23/59	Stein to Burdeshaw (TVA)
DX-30	1/29/60	Clem to file
DX-31	2/ 2/60	Clem to Williamson (with 2 tables entitled "Sodium Chlorate Plant—25,000 Tons Per Year" attached)
DX-32	2/18/60	Howe to Hopkinson
DX-33	3/ 8/60	Reed to Hopkinson
DX-34	4/11/60	Willits to McWhirter
DX-35	4/14/60	Clem to file
DX-36	4/25/60	Williamson to Hopkinson
DX-37	7/15/60	CAR 172-001-377
DX-38	7/15/60	CAR 172-001-377B
DX-39	7/18/60	Mayne to Otterstrom
DX-40	7/27/60	Penn-Olin Estimated Earnings
DX-41	8/16/60	Woodard to McWhirter

Defendants' Exhibits (Continued)

DX-42	8/22/60	Reed to Osborne, Staff Coordinating Committee and CAR Committee

[fol. 821]

DX-43	10/ 7/60	Garland to Shively (One page document entitled "E. Imports" attached)
DX-44	10/12/60	Shively to Distribution "M"
DX-45	11/ 9/60	Nusloch to Pickens
DX-46	12/22/60	Preston to All District Offices
DX-47	2/14/61	Dalziel to Preston
DX-48		General Stipulations, Set II
DX-49		Plaintiff's Answers to Interrogatories 1-4, Set II

[fols. 822-845] Plaintiff's Exhibits

PX No.	Description	Date	Dep. Ex. No.
416	Pennsalt Price Schedule HC 300	1/ 1/58	
417	Theobald to Noakes	2/24/58	
418	Schiessel to Logan	4/ 3/58	
419	Woodard to LaLande	4/ 6/59	
420	Pennsalt Management Committee Meeting # 103	6/25/59	
421	Wojcik to Hightower	7/23/59	Wood 1
422	Lewis to Hightower	7/28/59	Wood 2
423	Winsor to Williamson	1/27/60	
424	Ramstad to Mills	4/29/60	
425	Clem to Ramstad	5/12/60	
426	Olin Minutes of Financial and Operating Policy Committee	9/27/60	
427	Pennsalt Appropriations Committee Meeting # 41	10/14/60 and 11/ 3/60	
428	Olin Corporate Staff Comments on Whither Report to Block (Extract)	10/14/60	

[fol. 846] IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action 2282

UNITED STATES OF AMERICA, Plaintiff,

vs.

PENN-OLIN CHEMICAL COMPANY, et al., Defendants.

Transcript of Oral Argument—October 31, 1962

Wilmington, Delaware.

Before: Hon. Edwin D. Steel, Jr., Judge.

APPEARANCES:

Daniel J. Freed, Esq., Edward A. Copley, Esq., and Joseph H. Widmar, Esq., on behalf of plaintiff.

William S. Potter, Esq., on behalf of all defendants.

H. Francis De Lone, Esq., and John T. Subak, Esq., on behalf of defendant Pennsalt Chemicals Corporation.

Albert R. Connelly, Esq., and John W. Barnum, Esq., on behalf of defendant Olin Mathieson Chemical Corporation.

* * * * * * *

[fol. 847] COLLOQUY BETWEEN COURT AND MR. FREED

Mr. Freed: What is involved in this case, as the evidence has demonstrated is a combination to produce at the outset sodium chlorate, a common industrial chemical which has been produced in the United States since 1896. It involves a growing market for that product heretofore always met by the entry or expansion of independent companies, sometimes with sales agents. It involves an industry in which there has been ease of access historically; a number of small companies have participated and often to fill out the chlorine caustic line of an industrial chemical.

This case also involves an industry which, for the past 20 years, has been concentrated and in which at the time of suit there had been no new face, no new entrant, apart from changes of ownership, in 20 years.

The industry at the time of this suit was characterized by the absence of vigorous competition in the following sense: Pennsalt had maintained high, unusually high, prices for sodium chlorate in the western part of the United States. [fol. 848] In the east, according to Olin's own study of the market prior to embarking on Penn-Olin, prices were stable; there were no discounts, concessions, or premiums allowed. Historically Pennsalt found little effort to expand existing uses or develop new uses. And I there quote from a Pennsalt market report.

The technology of production in this field had been static and conventional for a number of years, but also in 1960, at the time this venture was formed, there were indications that a number of newcomers were considering entry into the field.

It was, in short, at the time of the Penn-Olin joint venture agreement, a situation which demonstrated a need for and a potentiality of some new blood and innovation.

. . . . . .

[fol. 849] The Court: You are about to address yourself to the proposition stated somewhat differently that if there had been no organization of Penn-Olin, if there had been no such organization then as a matter of reasonable probability both Olin and Pennsalt would have independently set up a plant and began to sell certainly into the southeastern market, leaving aside any necessity of the relevant market at the moment?

Let me state it again. It probably wasn't very clear.

If there had been no joint venture agreement and what ensued therefrom the Government is contending as a matter of reasonable inference and probability both Olin Mathieson and Pennsalt would have set up a plant and engaged in the manufacture and sale of sodium chlorate to the paper mills in the southeastern part of the United States?

Mr. Freed: I believe that is correct, Your Honor.

. . . . . .

[fol. 850] Mr. Freed: We think that the Government's case is made by showing that Pennsalt was a potential com-

petitor, a probable competitor in terms of its capability and interest.

The Court: But is it not necessary under the law to go beyond that? The law, it seems, to me, requires a weighing of whether the competitive situation which came about as a result of the joint venture was more vigorous or less vigorous than the competitive situation would have been if that joint venture agreement had not been entered into. Isn't that really the vital consideration?

Mr. Freed: Your Honor, I think that is one consideration to focus on, but I do not think it is the vital consideration.

The Court: Let's make this assumption:

The competitive situation was more vigorous after the joint venture agreement than it would have been had there been no joint venture agreement.

[fol. 851] On what theory can the Government prevail?

Mr. Freed: The principal basis for the Government's case here is that competition must be engaged in by corporations on an individual basis. Combinations between companies may not take place where those companies are actual or significant potential competitors.

The Court: Irrespective of whether the competitive situation would be, as I have used the words, more vigorous after the agreement than before?

Mr. Freed: Your Honor, if we had a situation where there was a need on the part of this industry for a new competitor, a totally unsatisfied need on the part of consumers, and nobody grasped the opportunity, it might be in that situation that a combination would be found to be justified.

The Court: I am going to press on this a little because I am not quite sure of your theory, and I want to give you opportunity to explain it to me on this posture.

I don't say it is the conclusion I will come to, but if I should reach the view that as a result of the formation of Penn-Olin a more vigorous competitive situation existed than would have existed if there had been no joint venture agreement, if I should reach that conclusion, or if I should reach the——

Let me state it otherwise.

[fol. 852] —that the likelihood there it wasn't reasonably

likely that the competitive situation would have been greater in the absence of the joint venture agreement than under the joint venture agreement, then on what theory can the Government prevail?

Mr. Freed: The Government can only prevail, Your Honor, if it demonstrates that in a significant market, in a significant area of competition there has been a lessening of competition, and, therefore, I think if Your Honor would find that there was no lessening of competition in any market, but that the combination only served to enhance competition, then I think by definition Your Honor could make a finding against the Government.

It is the Government's burden to show that competition was restrained or lessened.

The Court: And that burden can be met only by showing that there would have been more competition absent the agreement than there was competition under the agreement?

. . . . . .

[fol. 853] Mr. Freed: I would like to return, if I may, your Honor, to the question which you addressed to counsel before the recess.

I believe that, if you find that there was no probability that Pennsalt would enter the business alone, that there was no probability that Olin would have entered alone, and that there was no probability that anyone else would have entered the business alone, absent this joint venture, then by definition we think that the creation of a new company or a new plant would have simply added to a situation and have deprived the industry of nothing.

It is our contention that Pennsalt's qualifications plus interest for the sodium chlorate business made it a probable competitor, a significantly potential competitor, that Olin's qualifications and interest made it a potential competitor, and that, in addition, this was an industry which was attractive to many customers and that there was a likelihood that others would enter the business.

The Court: Mr. Freed, to pursue this just a little bit, make the asumption that I should find that if there had been no joint venture, there was a reasonable probability that either Pennsalt or Olin, but not both, would have

independently entered the field. Would I find from that that there was a substantial lessening of competition by [fol. 854] reason of the joint venture?

Mr. Freed: Under the facts of this case, your Honor, we believe that that would be sufficient for violation, and it is my intention to detail for you the losses to competition from the failure of these companies to go in individually. There were plans, there were likelihoods, on the part of Pennsalt, what contribution it would make to competition and that Olin might make to competition, which were lost completely by the joint venture. There were many innovations that disappeared because they simply combined existing talents.

The Court: If you make the assumptions—these contributions which would have been produced by the individual entry of Olin and Pennsalt would not have all occurred if you make the assumption that only one of them would have entered?

Mr. Freed: That is correct, your Honor, but some of them would have occurred. But I think, to answer your question and to analyze the effect on competition under the situation which you have outlined, we must return to the areas that I outlined earlier of inquiry into effects on competition. First, we have the competition——

The Court: What is the assumption to be the predicate for this statement you are going to make?

Mr. Freed: That we must examine under the hypothesis [fol. 855] that your Honor finds that one but not both of these defendants would have entered the business alone.

The Court: Let's be more specific. Let's assume Pennsalt—you have just dealt with Pennsalt and its thinking on the subject—let's assume Pennsalt would and Olin would not. Where would you have had a more vigorous competitive situation as a result of that than you have at the present time?

Mr. Freed: The focal point of our inquiry again, your Honor, is not to determine whether there was an incidental benefit to competition from this case but whether there was a restraint of trade or a lessening of competition. The statute is violated if the Government shows that in any market there was a lessening of competition. Once that

is shown, the benefits that take place elsewhere are not relevant for consideration.

We saw that in the Bethlehem case quoted in our brief, and this is the general theory of anti-trust, that if there has been a restraint of trade, some incidental benefits to the public are not for these companies to grant us by combination. We must first inquire into competition between Pennsalt and Olin, and under the hypothesis which your Honor has posed there would be no elimination of competition between Pennsalt and Olin because your Honor would have found that Olin was not going to be a competitor.

[fol. 856] The second inquiry would be, Is there an adverse effect on competition from the combination of Pennsalt and Olin, on the one hand, and all other potential competitors on the other? Now, the evidence in this case discloses that by combining their resources they were able to build a plant and time an announcement within their contemplation which would pre-empt the market from other interested newcomers.

If under the hypothesis that your Honor——

The Court: Well, Pennsalt was talking about pre-empting the market from others if it went into the business on its own.

Mr. Freed: The question of the size of plant was never resolved. Pennsalt did talk about a twenty or twenty-five thousand ton plant, and it also talked about smaller ones. Olin talked about a fifteen thousand ton plant. Other plants in this industry were in the twelve thousand ton range and smaller. The belief was that a twenty-five thousand ton plant would probably satisfy the present and foreseeable needs of this market. Nobody except this joint venture ever built a plant more than twelve thousand tons in size at the outset. And if your Honor finds that Olin would not have entered this business and that Olin's participation with Pennsalt did not enable the plant to be built of such a size as to eat up most of the remaining capacity [fol. 857] of the market, then you would be justified in finding that there was in fact no injury to other potential competitors from the Pennsalt-Olin combination.

The third area of inquiry would be, Did the combination of competitor Pennsalt and non-competitor Olin serve to

lessen competition or give unreasonable advantages to the Pennsalt-Olin, Penn-Olin combination, over other people already in the sodium chlorate business? And we have detailed in our findings the enormous advantages which this combination gave to Pennsalt and Olin over the other people who were in the business in terms of size and contacts and experience and sodium chlorate generator systems.

The Court: Of course, it seems to me you get into a little bit of a paradox when you talk about the benefits which would have flown if Olin or Pennsalt had gone it alone, benefits which I suppose would have made them more competitive, and then at the same time you decry these benefits which increase the competitive capacity of the joint company. I mean, anybody who is trying to be competitive is going to try to improve its position one way or another. The question is whether or not they do it in a way which violates the law. That is what it comes down to. You say you can do it one way, but you can't do it through the agreement or combination route. I suppose maybe that is the answer to what I was about to ask.

Mr. Freed: I believe the cases say, your Honor, that [fol. 858] an individual non-monopolistic enterprise may lawfully do many thinks which give it an advantage over competitors and may make it more difficult for others to compete or to enter a market——

The Court: Let me put this precise question to you, and if it can be answered yes or no, I would like it. If it can't be, you will have to explain your answer. Does the record support the conclusion that if there had been no joint venture, both Olin Mathieson and Pennsalt would have built a new sodium chlorate plant and embarked in the business?

Mr. Freed: With certainty, no, your Honor.

The Court: Not with certainty, but as a matter of reasonable probability.

Mr. Freed: I think the record does support the conclusion that the capabilities and resources and background for this business which were possessed by Pennsalt and Olin made each of these companies abundantly well equipped, as well as intentioned, to enter the business——

The Court: A company might be well equipped to enter the business, but certainly the productive capacity in the

industry would be a very vital factor, would it not, in management's determination?

Mr. Freed: Certainly.

The Court: I mean, if this were an industry with over-[fol. 859] capacity in sodium chlorate—there might be many companies that had the knowhow and the sales force, the technology. But certainly the productive capacity of the industry would be a pretty important factor.

Mr. Freed: It certainly would, your Honor.

The Court: Now, I want to press this a little. There would not have been a simultaneous determination, in the Government's view, not the same day and hour, certainly, by Pennsalt and Olin Mathieson to go into the business? You would not go so far as to say the record supported that, would you?

Mr. Freed: No, your Honor.

The Court: Presumably there would be some, I should suppose, reasonable interval between definitive decisions, and if that is a fair assumption, then would not the fact that, we will say, Pennsalt by hypothesis announced its intention to build a large sodium chlorate plant be a real factor in probably determining Olin Mathieson not to? Or vice versa?

Mr. Freed: I believe that that would be an important factor, your Honor, but not necessarily a determining one. As your Honor knows, following the filing of this lawsuit, one more company, Pittsburgh Plate Glass, did enter the business. The announced size of that plant and the other [fol. 860] aspects of it are the subject of much in camera testimony, which we need not discuss here, and we also do not know whether the entry by that company was influenced by their predictions as to the Government's likelihood of success in this case. But it does show that despite twenty-five thousand tons of sodium chlorate capacity there was some thought that additional capacity was warranted in the industry.

The Court: Had it been in the manufacture of sodium chlorate before building its Lake Charles plant?

Mr. Freed: It had been in Canada, your Honor.

* * * * * * *

[fol. 861] Mr. Freed: Secondly, we have set forth at finding 70.0 of our Findings of Fact a chart which describes the manner in which all of the people presently in the sodium chlorate industry achieved that entry, and the purpose in securing testimony from competitors and in consolidating this evidence in our findings and at pages 32 [fol. 862] through 34 of our reply brief is to establish an objective standard for the Court's determination of whether or not Pennsalt and Olin were competitors, because we do not think that what they said their intent was is important; we think the Court's decision must be based on the capability of these companies, as established by their qualifications, compared with those of others.

The Court: Now, do you mean that if I should find that for one reason or another, good, bad or indifferent, they would not have gone into the business independently, that because someone else might have under similar circumstances, that the joint venture is violative of the Act?

Mr. Freed: That is our position, your Honor. We believe that subjective desire——

The Court: Now, I put it one way. I had supposed that your position was that because others had, under similar circumstances, if they were similar, entered the field was persuasive proof that these utterances by officers that they would not have entered the field were simply not true. There is a difference in the two approaches, it seems to me.

Mr. Freed: Your Honor, we believe that if a company adopts as its policy that it will not enter into a new business for which it has every capability because it will not compete on its own, it will not undertake risks, it will not [fol. 863] accept the profits that other competitors take, and that it will only enter these businesses for which it is fully qualified by combining with other people who are fully qualified, we think that that standard is impossible to adopt under the anti-trust laws. We think that every company is fully entitled to decide to enter the business and take the risks or to not enter the business for any reason it pleases.

The Court: But what you overlook on that approach is what the effect is on competition of the combination. If you create a competitive situation which was non-existent

and which was not going to be existent, how can that creation of a competitive situation lessen competition?

Mr. Freed: In order to answer your Honor's question we again must go back to examine all of the different areas in which the effect on competition must be measured. Under your Honor's hypothesis, that two companies decide they will not compete with one another, they will not enter the business alone, it is perhaps possible to find that no competition between them was eliminated by the combination. And on that point the defendants would be safe. However, the Court's inquiry does not stop with looking solely at what the two companies do with one another——

The Court: That seems to me to be clearly the fact, and that is the position of the defendants, that you must look [fol. 864] at the competition in a broader way and not simply one company viz-a-viz another.

Mr. Freed: And if your Honor finds that these defendants under no circumstances would have become competitive with one another, then perhaps you can find that they did not eliminate potential competition between them. But if you then go on to find that by combining they established an intent and an ability to pre-empt others from entering the business independently, then you find that competition has been injured and has been lessened because independent competitors have been foreclosed.

The Court: But again, as to whether or not independent competitors have been foreclosed, it seems to me you must have some pretty tangible and real evidence of that, or some facts from which that inference can reasonably be drawn, and not simply a matter of speculation that others might have come in if this joint venture had not been created.

Mr. Freed: Your Honor, in dealing with the Clayton Act, all of the cases culminating in the Supreme Court's recent decision in Brown should establish it as only a probability that competition is injured as the test. The Government need not show in this court that Company A or Company B would have entered. We need only show that there was ease of entry into the business, that there [fol. 865] were a number of companies interested and qualified, and that competition could have been achieved in this industry according to——

The Court: Isn't the question act whether it could have but whether it would have? Isn't that the critical thing? You talk about one word, but it seems to me that is the difference between your approach and the defendant's approach, almost, on that one word, could have and would have, not would have as a certainty but would have as a reasonable probability.

Mr. Freed: I believe that when your Honor introduces reasonable probability here that he thereby takes into account——

The Court: The "could"?

Mr. Freed: —the case of entry, the capabilities of others, and the capabilities of the defendants, and I do think that that one test accommodates everything which the Government and the defendants are presenting to you. You need not find a specific competitor who would have entered, but if you find that there is a reasonable likelihood that entry could have been achieved and that entry would have been achieved in this business because of its historical pattern and because of the existence of interested parties, including the defendants, then the test of the Clayton Act has been satisfied.

One very tangible effect of this joint venture, as pre- [fol. 866] dicted by the agreement made back in 1957 and now as admitted in the defendants' brief, is that Pennsalt is effectively removed as an Eastern competitor. The defendants state, at page 16 of their brief, that Pennsalt's production will be marked in the West now that Penn-Olin is on stream. This means that the 16 to 30 percent of sales of Pennsalt's sodium chlorate made in the East before will be wiped away and Pennsalt will for the first time become a company in the sodium chlorate industry confined in its market to one section of the country.

The Court: But you will have a substitute for Pennsalt in the East, and the question is whether or not that substitute can do a more effective job. If it can, then you haven't had any restraint of trade, except in that viz-a-viz sense which you have said is not the important sense; it is the overall sense of the effect of competition which has to be looked at.

Mr. Freed: I believe that if a combination results in dividing territories between competitors that your Honor

can not then go on to determine whether this is good or bad for competition.

The Court: Do you want to talk about this 1957 agreement now? We have not discussed that, and it is something I would like to hear you about. You are going to come to that in the development of your argument?

[fol. 867] Mr. Freed: I would be happy to answer any questions or to discuss it——

The Court: Well, several questions have occurred to me. Let's assume that I find that that agreement is not violative of the anti-trust laws, would the joint venture be?

Mr. Freed: Certainly, your Honor.

The Court: The joint venture would be. Now, suppose that I should find that the joint venture was not violative of the law, would the 1957 agreement be? In other words, are they independently, without reference of one to the other, violative of the law, the '57 agreement and the joint venture agreement?

Mr. Freed: We think they are, your Honor, but we think that your Honor can give independent consideration to the agreements between these companies when they didn't have a joint company and to the creation of the joint company itself, and each or both can be found to violate the anti-trust laws. The practical significance of combining the two here is that the 1957, '58, '59 and '60 arrangement between these companies is no longer in effect as much. Therefore, your Honor could find that it violated the anti-trust laws, but then there would be the question of relief: What do you do about it?

The Court: Well, suppose there had been no joint ven-

[fol. 868] ture and suppose this '57 agreement had continued in effect, it is your view that that would have violated the law?

Mr. Freed: It is our view, your Honor, that it did violate the law because it was entered into by two companies both of whom were intensely interested in and preparing for independent competition in the field and was designed to keep them from competing, and what they did was, they excluded Pennsalt from a market where it had been competing on its own.

. . . . . .

[fol. 869] Mr. Freed: There were a number of companies that were named through these years as considering the business. There was Pittsburgh Plate Glass, there was Solvay, there was Wyandotte Chemicals, there was Virginia Smelting. We don't know whether this exhausts the list. We do know that by virtue of the entry of Penn-Olin and the announcement, only one more company has come into the business, and your Honor knows the significance in terms of the manner of entry and the size of entry of that one company.

There is no telling what would have happened had only Pennsalt come in with a plant or only Olin come in with a fifteen thousand ton plant, how many more competitors might have come in. We can not state with certainty what [fol. 870] would have happened there. We do know that much more capacity of this industry would have been available for independent companies to consider embarking on the business.

[fol. 871] Mr. Freed: There is another that I have not mentioned here but which is detailed in findings 86 and 87, which is the reasonable likelihood that the combination of Pennsalt and Olin will in time dwarf the other members of the industry in the size and power and contacts and prospects for success in this business, because of the dominance which Pennsalt brings to the venture from its Western experience and the dominant Olin position in chlorine dioxide installations, and as a part of that category is the definite foreclosure of Olin itself as an independent customer of Hooker for sodium chlorate at Niagara Falls, and that is discussed in findings 86.0 through 86.4 and at pages 59-A and 60-A of our reply brief appendix.

Your Honor will recall that Olin was far and away the largest customer which Hooker's Niagara Falls plant had for sodium chlorate. It even remained the largest when its requirements were split in half, when there was a diver- [fol. 872] sion, and Hooker and the others in the industry will of course completely lose Olin as a customer of sodium chlorate in light of this combination.

And finally, competition in the sodium chlorate industry, we believe, will be the loser in cost and in price and in uses

because of the particular plans and benefits to competition which Pennsalt and Olin had independently programmed, and which were eliminated by the joint venture. I refer, first of all, to Olin's platinized titanium anode. According to the head of the Research and Development Department of Olin, and according to the documents which we have detailed in findings 82.1 and 65.4 and at pages 49-A and 50-A of the appendix to our reply brief, this anode constituted a very promising development which would reduce the cost of producing sodium chlorate and in the normal course of events might for the first time in this industry give a possibility for lower costs and lower prices and more vigorous competition in the production and marketing of the product. This invention and development in Olin's lab was completely halted when the joint venture was entered into and Pennsalt's conventional system was adopted.

The Court: Well, you mean the joint venture might throttle potential technological advances which would be important ultimately to the public?

[fol. 873] Mr. Freed: That is correct, your Honor.

Secondly, the joint venture may well throttle the Western development of sodium chlorate competition by Olin because in the 1958 Whither Report, which is Plaintiff's Exhibit 15, under Section 9, the Chemicals Division there discussed how most of its activities had been concentrated in the South and how it looked forward to an expansion into Mid-West and Far West chemical operations——

The Court: Now, is this on the assumption that Olin would have built its own plant, or is this on the assumption that Olin would have purchased from others and competed as a selling instrumentality on the West Coast?

Mr. Freed: I think the assumption in the report was that Olin would become a producer and seller of products in the Mid-West and Far West.

Third, Olin was on the verge of entering into a contract with Vickers-Krebs on exploration and development of a prototype cell at the time of the joint venture, and as to that contract, as your Honor knows from finding 33, the negotiations were suddenly broken off in early 1960 when, according to Dr. Wojcik, some complications arose.

Finally, we know from the reports of Olin in 1960, from

findings 36 and 64.4, that Olin could have and in all likelihood would have tied its sodium chlorate plant to the [fol. 874] chlorine-caustic plant in the Chattanooga area, because it did in fact go ahead, as the findings 64.4 and 64.5 indicate, it did go ahead and build that portion of the Chattanooga operation which concerned chlorine and caustic soda but left out the sodium chlorate plant, only because of the joint venture with Pennsalt. But it is reasonably likely that Olin would have attached a sodium chlorate plant of its own to this other operation at Charleston, and this was the prediction of Olin's own Capital Appropriations Committee, according to the findings I have just cited.

The Court: Well, now, is that simply in furtherance of this view that the probabilities were that Olin would have gone into the manufacturing business on its own, absent the joint venture? It has no independent significance that would have attached to the chlorine-caustic plant at Chattanooga?

Mr. Freed: I believe not. As far as the loss to competition from Olin it was principally in this platinized titanium anode.

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[fol. 875] The Court: Before I hear you, perhaps you can answer this, Mr. Freed. It is in the briefs I know, but what was the purpose of the contract between Olin and AmPot for 14,000 tons of sodium——

Mr. Freed: For sodium chlorate in 1960?

The Court: 1961.

Mr. Freed: I believe that the purpose of the AmPot contract was to supplement the supply of sodium chlorate available from Pennsalt to enable Olin to make sales on behalf of Penn-Olin before the Penn-Olin plant went into production. It was a supplemental supply contract.

The Court: You agree?

Mr. DeLone: Yes. That is an accurate statement.

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[fol. 876] Mr. Freed: We believe that the Chemicals Division of Olin Mathieson must be considered as Olin itself for the purposes of this case.

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[fol. 877] The Court: Let me ask you: If I should come [fol. 878] to the conclusion that as a mater of reasonable probability, absent the joint venture, Olin would have constructed a factory and sold its products in the southeast, if I should come to that conclusion, does the Government contend that from that the Government must follow, the Government must win?

Mr. Freed: Yes.

The Court: Let me ask you: Isn't there a further question as to whether or not the construction of a plant by Olin, sales of products by Olin in the southeast, would have produced a more competitive situation than did the joint venture?

Mr. Freed: No, your Honor, that would not be a legitimate question. It is not for the Government and it is not for the courts to weight the advantages of combinations of competitors and what they give to the economy, and what individual companies give to the economy. The antitrust laws do not stand as a judge of what is best for the country.

The only thing which we urge is that competition determine the health and the vigor of the economy on this basis in this business.

The Court: I recognize that as between Pennsalt, and under the hypothesized situation, that there would be entry by Olin, that the joint venture has eliminated competition which otherwise would have existed between Pennsalt [fol. 879] and Olin. I recognize that. But doesn't the Clayton Act require something more, that the acquisition of assets probably will be to substantially lessen competition?

Mr. Freed: That is correct, your Honor. There is a distinction between limiting our intention solely to the merging companies and looking at the industry as a whole.

The Court: I have in mind that distinction, but I want to just press a little on the necessity of showing a substantial lessening of competition, assuming that I should find

that Olin would have entered independently in the absence of the joint venture. That is the assumption I am making at this point.

Is it not conceivable, as a matter of theory, that there would have been more and tougher competition under the joint venture than there might have been if Olin had built a plant in the east itself?

Mr. Freed: I think we certainly can assume, your Honor, that if two or three or ten companies, great industrial corporations, combine to form any new plant that they may thereby provide much greater competition for the other people in the industry than existed before. It is for this reason, because we do not permit combinations which restrain trade among the members, and——

The Court: I thought you agreed that wasn't the cri- [fol. 880] terion, that that was one consideration but you had to look at the entire competitive situation.

Mr. Freed: That is correct, your Honor.

If we take the following hypothetical, we are dealing here with a case in which Pennsalt and Olin combined to form a new plant, the defendants arguments offer very little distinction between that situation and a joint venture which would have consisted of Pennsalt, Olin, Pittsburgh Plate Glass, Solvay, Wyandotte, and Virginia Smelting.

If all six of them got together and formed the joint plant it would be far more vigorous than Penn-Olin, your Honor, and it would be equally violative of the anti-trust laws if these companies were potential competitors.

The Court: What you have done is would have eliminated competition between the number of companies here. The real question would be how much competition had really been eliminated between Pennsalt and Olin if Olin had built a plant.

You have Pennsalt with a plant out in Oregon doing no business in Florida, and you have Olin Mathieson, under our hypothesis, doing business in Florida.

Now, it seems to me you would have to compare that competitive situation with the competitive situation which would exist if you had your joint venture, namely, both [fol. 881] Pennsalt and Olin together directing their shots

at the southeastern market from that more advantageous position.

Mr. Freed: As we view the industry, your Honor, and I think this will answer your question, prior to Penn-Olin there were three independent competitors in this business; Pennsalt with one plant which sold nation-wide: Hooker had two plants, one of which sold in the east, one of which sold east and west; AmPot had two plants, one which sold only in the east, one in the west that sold substantially in the east. Three independent companies.

We believe that the evidence establishes that Olin would have been a fourth brand new comer into this industry.

What is the difference between Olin and Pennsalt plus Olin? It is this: If Olin had come into this industry alone it would have been under no inhibitions, practical, legal, or otherwise, from selling its products through the United States. Under that circumstance it would have competed with all of the eastern producers, with Pennsalt sales in the east, and out on the West Coast, which we know from the evidence was in great need of more competition; and Pennsalt would not have been inhibited from selling in the east.

In other words, this joint venture by two companies going in it instead of one resulted in dividing the market between Pennsalt and Olin rather than introducing a fourth [fol. 882] newcomer.

The Court: What you are now arguing is that the result of the joinder as against the alternative of a plant by Olin as against that alternative the joinder did result in a substantial lessening of competition.

Mr. Freed: Yes.

The Court: Very well. Now, suppose you come to the opposite conclusion, that is, that it didn't, then would a determination that Olin would have built a plant require a judgment in the Government's favor?

I probably haven't stated it very clearly to you.

What I am doing is saying you have argued to me, as I understand it, you have contrasted two situations, one, no joint venture, with Olin going into the market as a manufacturer in the southeast with the joint venture situation, and you have argued that the joint venture situation did substantially lessen competition—reasonably likely that it would have lessened competition, as against that which

would have prevailed if there had been no joint venture and Olin came in. That is what you argue.

Mr. Freed: Yes, your Honor.

The Court: Now I am saying suppose I should disagree with that argument and say that competition would not have been substantially lessened under the facts we have [fol. 883] hypothesized, namely, the entry of Olin and the elimination of the joint venture. I am saying suppose I came to the conclusion that competition wouldn't have been lessened, it was not, there would not have been a great deal of competition by Olin alone, that is, by Olin and Pennsalt together, then you say the Government is entitled to a judgment?

Mr. Freed: That is right. I don't believe that your Honor, under all of the anti-trust decisions, I don't believe that you can weigh how vigorous the competitor Olin would be against how vigorous a competitor Penn-Olin would be.

The Court: Doesn't the law require you to do that?

Mr. Freed: No.

The Court: Can a combination be illegal unless it has that result?

Mr. Freed: The combination is illegal, your Honor, if two companies combine, and as a result of their combination there is a lessening of competition between them or with others. In either situation that ends the problem. There is no weighing of a third alternative in which you would say there may be a lessening between them and with others, but there would be more competition with joint venture.

That third creation is not relevant, and I cite to Your Honor several cases in which there have been creations of this sort. The foremost case is in the Supreme Court in [fol. 884] the Timkins case cited in our briefs, where American Timkin and British Timkin formed a brand new company, French Timkin, to exploit one of the markets. This was a brand new creation. The result of creating it was there was division of markets, a division of the places in which the companies would compete. In the Supreme Court decision it was stated that the fact there would be more profits to an American enterprise from the creation

of this joint company was no defense whatever, that as long as there was combination involved it was unlawful.

In the Minnesota Mining case we have the same situation, where the Americans contended they could not make nearly as much profit by individually competing in foreign countries as they could by setting up a brand new joint company, and the court held that the combination of these competing enterprises who are only potential competitors in that market in which the joint company was established that combination violated the anti-trust laws irrespective of weighing profitability.

The Court: I haven't injected the profit factor into my discussion; that is your injection, not mine.

Mr. Freed. I inject it, Your Honor, because the defendants interject it, and there is——

The Court: I am interjecting the substantially lessening of competition factor, not profits.

Mr. Freed: Just let me say that in the Minnesota Mining [fol. 885] case the court found it was not necessary for the Government to show how much commerce could be involved if there were no joint company.

The court said we may even speculate without this joint company abroad there will be little success by these Americans against foreign competition; nevertheless, the Sherman Act required that a combination of competitors be condemned and the weighing of relative profitability, relative success, the relative vigor of competition was not a concern for the court.

That is our contention here; that the anti-trust laws require competition, and even though that competition may in some cases result in the injury and disappearance of some companies, as, for example, in the case of price fixing.

Your Honor knows there have been a wealth of cases involving price fixing. It is unlawful, nevertheless it is frequently justified by businessmen and by economists in situations in which without fixing a minimum price some businessmen may find that they cannot maintain a margin of profit and would have to go out of business. The making of the agreement in a sense helps the health of those companies. That is not a relevant consideration under the anti-trust laws. The combination of competitors is forbidden.

The Court: In other words, the effect of such an ac-
[fol. 886] quisition may be substantial lessening of competition, it has to be read out of the Act?

Mr. Freed: No, Your Honor. So long as the Government shows that there has been a lessening of competition in any of the areas that we have focused on today. The court must find the venture unlawful even though you would find that the venture had some advantages in other areas of consideration. It might be more vigorous in——

The Court: The Bethlehem case, we are talking about geographical areas when it created more competitive situations in some, and less competitive situations in others?

Mr. Freed: That is correct, Your Honor.

[fol. 887] The Court: What I am talking about is whether or not the broad picture of competition in a given area isn't the criterion.

Mr. Freed: That would be the criterion if an individual company were involved, but so long as there is a combination and so long as that combination substantially lessens or restrains trade in any area that you focus on, I do not think that the Court is called upon or permitted to weigh that lessening against an increase of another sort.

The Court: Well, doesn't the American Sugar Refining case say just the opposite?

Mr. Freed: I don't believe so, your Honor.

The Court: American Crystal Sugar Company case, page 33 of the Defendants' brief.

Mr. Freed: I don't believe that a full reading of the American Crystal Sugar case will so indicate.

The Court: Very well. You have clarified for me the Government's position on it and have been very helpful.

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[fol. 888] Mr. Freed: So what do we find happened to competition here? Mr. Connelly is correct. We did have the representative of AmPot and the representative of Hooker come and say that Penn-Olin's formation increased competition for them, made vigorous competition for them. This is always true. Every time a monopolist expands his hold on a market he makes it much tougher for the people who are left. This was precisely the holding of the Second Circuit in the Alcoa case, that the expansion of the monop-

oly position to meet new challenges and create new capacity —of course, it increased competition for everyone else. But that was not the test. It made it more difficult for the other people and it made it more difficult for newcomers. And in the Alcoa case it was a monopoly which was unlawful; in our case it is the combination which performed this unlawful act.

When an individual company builds a new plant, that also makes it difficult for competitors, but there is no [fol. 889] touchstone of anti-trust violation, there is no combination, contract, conspiracy or merger. But if there is a merger which violates the anti-trust laws because it substantially lessens competition, that merger may enable the merged companies to build one or a hundred new plants. It is irrelevant that it is tougher for the other people in industry. It is not the competition against them that counts; it is, What is the competition between the combining companies and what is the fairness? Can a combination fairly compete with individual entities? And the theory of our competitive system is that individual companies must make the decision to compete and make competition more vigorous.

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[fol. 890] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 1

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.501 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Rep. By	Charge No. 63-1-743-100-6401
J. O. Logan (3)					
B. H. Wojcik					
B. H. Nicolaisen					Report Dated: July 18, 1955
W. C. Gardiner	X				
B. E. Hill		X			
(W. J. Sakowski)			X	X	Typed: October 14, 1955 (djp)
G. D. Byrkit					
R. E. Maizell					

Production of Sodium Chlorate

Approved By: Bruce E. Hill.
Date: 10/19/55.

Signed: W. J. Sakowski, BEH.

Date: 10/19/55.
BHW

[fol. 891] Summary

The increasing use of ClO_2 as a bleach in paper mills aroused new interest in the production of $NaClO_3$. W. W. Northgraves estimates Olin Mathieson Chemical Corporation's sales of 40 t/d with a potential increase as mills gradually convert to ClO_2 bleaching.

The investment is estimated to be about $3,000,000 for a 40 tons per day unit erected at an existing plant. The gross annual sales would be about $2,520,000.

Due to the wide range of values available on electrolytic power and graphite consumptions, two production cost estimates were made. The highest production cost estimated is $122.78 per ton while the most optimistic value is $97.06. The percent cash gain varies from 15 to 21% depending on the above production costs. Percent return on the investment varies from 8% to 15%, respectively. Pay-out times vary from 6.7 years to 4.7 years.

Since electrolytic power and graphite costs are 58 to 44% of the total production cost, it would be advisable to obtain these values in a pilot plant prior to entering into the production of $NaClO_3$. Therefore, it is recommended that a one cell pilot plant be constructed at Niagara Falls.

Objective

This survey was made to study the economics of electrolytic production of sodium chlorate.

Introduction

Due to the expanding use of ClO_2 for pulp bleaching, W. W. Northgraves suggested that Olin Mathieson Chemical Corporation should re-examine the possibility of producing sodium chlorate. In the past several evaluations of the process were made by R. B. MacMullin and Dr. W. C. Gardiner, each showing a small but satisfactory return on a 10 t/d scale, but the market did not appear secure for larger scale.

In his letter of December 12, 1954, W. W. Northgraves states that Olin Mathieson Chemical Corporation would be able to sell 40 tons per day to various paper mills using the Mathieson ClO_2 process. He also stated that the potential

sales may be even greater than anticipated because of a trend toward complete replacement of hypochlorite with ClO_2.

There are wide variations existing in the reported power and graphite consumptions for the production of sodium chlorate. Figures on consumptions obtained from J. Knox Davidson are higher than any other reported data. Therefore, two estimates have been prepared taking the most optimistic figures available. The actual operation of the plant is expected to be somewhere between these two extremes.

Bases for the Estimate

a. Investment

The investment is estimated to be about $3,000,000. This is based on the $3,500,000 investment reported for the 33 [fol. 892] tons per day plant erected by Oldbury Electro Chemical Company at Columbus, Mississippi. (Chem. and Eng. News, *32*, No. 45, p. 4464; 1954) The lower figure for this estimate is based on the fact that Olin Mathieson Chemical Corporation will build the sodium chlorate unit at the site of an existing plant. Thus, the majority of the nonmanufacturing facilities may be discounted. At McIntosh, such facilities accounted for about 22% of the total investment.

The investment was scaled-up from the 33 tons per day plant to a 40 tons per day plant by use of the six-tenths factor.

b. Raw Materials

The brine costs were assumed at $0.85 per ton for Saltville, Virginia. All other chemical costs were taken at list price in the O.P.D.R. Graphite for the electrodes was assumed at $0.30 per pound since some machining would be required.

Consumptions of brine and chemicals were based on data obtained from J. Knox Davidson. The consumption of graphite in Table I was based on data of J. Knox Davidson, whereas that in Table II was based on the most optimistic figure from Kirk and Othmer.

c. Utilities

Steam costs, water costs and power costs were based on values at Saltville. Steam and water consumptions were based on figures obtained from J. Knox Davidson. A. C. power consumption was based on figures taken from FIAT Report No. 752. D.C. power consumptions were based on figures from J. Knox Davidson, the higher value, and a more optimistic value from a letter to Dr. W. C. Gardiner from Mr. R. E. Gage dated June 13, 1950.

d. Operating Labor

The operating force consists of six men per shift with one day man or a total of 25 operating personnel. These personnel are required to operate the eight step sodium chlorate process.

1. Purifying Brine, (One man per shift included in the brine cost)
2. Electrolyzing, 2 men per shift
3. Cell Liquor, Purifying and Evaporating
4. Continuous Crystallizing
5. Centrifuging, 3 men per shift
6. Washing
7. Drying
8. Packaging, 1 man per shift with 1 day man

[fol. 893] References

Kirk and Othmer *3* (1949)
Trans. Elect. Chem. Soc. Vol. 92, 1947
Oil Paint and Drug Reporter
J. Knox Davidson Correspondence
Letter to J. O. Logan from W. W. Northgraves dated 12/2/54
Chem. and Eng. News *32* (1954)
Chem. Week Buyers Guide (1954)
Facts For Industry, Inorganic Chemicals and Gases Summary, p. 16, 1953
Facts For Industry, Inorganic Chemicals and Gases Summary, p. 6, 1955

Attachments

Table I	Production Cost Estimate; Sodium Chlorate Production; Based on J. Knox Davidson's Figures
Table II	Production Cost Estimate; Sodium Chlorate Production; Based on Most Optimistic Figures
Table III	Financial Criteria Sheet; Sodium Chlorate Production; Based on J. Knox Davidson's Figures
Table IV	Financial Criteria Sheet; Sodium Chlorate Production; Based on Most Optimistic Figures

[fol. 894]

Table I

H-35.501 (WJS)

PRODUCTION COST ESTIMATE

ESTIMATE NO. 1 PRODUCTION OF Sodium Chlorate SERVICE FACTOR 100%

BY WJSchonfeld PRODUCTION RATE 40 t/d

DATE 7/18/55 LOCATION Saltville, Virginia COSTS PER day (TERM) ton (UNIT)

INVESTMENT $3,000,000	UNIT	UNIT PRICE	UNITS PER TERM	UNIT CONSUMPTION	ITEM COST PER TERM	GROUP COST PER TERM $854.42	ITEM COST PER UNIT	GROUP COST PER UNIT $21.34
RAW MATERIALS								
NaCl brine	ton	0.83	24.3	0.604	$20.20		$.50	
	lb.	0.06	888	22.2	53.20		1.33	
$BaCl_2$	lb.	0.014	210	5.26	2.94		0.07	
Na_2CO_3	lb.	0.032	3110	77.7	99.50		2.48	
HCl	lb.	0.115	57.2	1.43	6.58		0.16	
$Na_2Cr_2O_7$								
graphite	lb.	0.30	2240	56	672.00		16.80	
						$2282.78		$57.10
UTILITIES								
FUEL	M	0.47	176	4.4	82.80		2.07	
STEAM	KWH	0.00676	304,000	7600	2055.00		51.40	
POWER, d.c.	M	0.07	184	4.6	12.88		.32	
WATER								
AIR							3.31	
Power, a.c.	KWH	0.00505	21,800	546	132.10			7.20
						288.00		
LABOR							7.20	
OPERATING	M.H.	$2.00	144		288.00			
MONTHLY								
OVERHEAD						288.00	4.80	7.20
REPAIR & MAINT.								
LABOR	M.H.	$2.00	96		192.00			
MATERIALS (12 mos 5 hrs/day)					96.00		2.40	
OVERHEAD 50%								
						82.20		2.00
SUPPLIES & MISC 1% inv./year						15.00		0.38
LABORATORY 1 chemist at $450/month								73.94
TRANSPORTATION								
TOTAL OPERATING COST						1098.40		27.50
DEVELOPMENT								
OVERHEAD							1.80	
DIRECT 25% Operating Labor					72.00		10.34	
INDIRECT 100% oper. labor + 1.5% inv./year					411.00		1.46	
INSURANCE 0.7% inv./year					58.40		13.90	
DEPRECIATION 6.6%/year					557.00			10.44
								122.78
TOTAL MANUFACTURING COST								
GENERAL EXPENSES								
TOTAL PRODUCTION COST								
CREDIT FOR BY-PRODUCTS								

BY WJSakowski PRODUCTION RATE 40 t/d SERVICE FACTOR 100

DATE 7/18/55 LOCATION Saltville, Virginia COSTS PER day (TERM) ton (UNIT)

INVESTMENT $3,000,000	UNIT	UNIT PRICE	UNITS PER TERM	UNIT CONSUMPTION	ITEM COST PER TERM	GROUP COST PER TERM	ITEM COST PER UNIT	GROUP COST PER UNIT
RAW MATERIALS						$854.42		$21.34
NaCl brine	ton	0.83	24.3	0.604	$20.20		$.50	
$BaCl_2$	lb.	0.06	888	22.2	53.20		1.33	
Na_2CO_3	lb.	0.014	210	5.26	2.94		0.07	
HCl	lb.	0.032	3110	77.7	99.50		2.48	
$Na_2Cr_2O_7$	lb.	0.115	57.2	1.43	6.58		0.16	
graphite	lb.	0.30	2240	56	672.00		16.80	
UTILITIES						$2282.78		$57.10
FUEL								
STEAM	M	0.47	176	4.4	82.80		2.07	
POWER, d.c.	KWH	0.00676	304,000	7600	2055.00		51.40	
WATER	M	0.07	184	4.6	12.88		.32	
AIR								
Power, a.c.	KWH	0.00605	21,800	546	132.10		3.31	
LABOR						288.00		7.20
OPERATING	M.H.	$2.00	144		288.00		7.20	
MONTHLY								
OVERHEAD								
REPAIR & MAINT.						288.00		7.20
LABOR (12 men 8 hrs/day)	M.H.	$2.00	96		192.00		4.80	
MATERIALS								
OVERHEAD 50%					96.00		2.40	
SUPPLIES & MISC. 1% inv./year						82.20		2.05
LABORATORY—1 chemist at $450/month						15.00		0.38
TRANSPORTATION								
TOTAL OPERATING COST								73.94
DEVELOPMENT								
OVERHEAD						1098.40		27.50
DIRECT 25% Operating Labor					72.00		1.80	
INDIRECT 100% oper. labor + 1.5% inv./year					411.00		10.34	
TAXES & INSURANCE 0.7% inv./year					58.40		1.46	
DEPRECIATION 6.67%/year					557.00		13.90	
MANUFACTURING COST								101.44
SHIPPING COST								122.78
CREDIT FOR BY-PRODUCTS								
NET PRODUCTION COST								

NOTES Sodium chlorate sells for $175/ton.

[fol. 895]

H-35.501 (WJS)

Table II

PRODUCTION COST ESTIMATE

ESTIMATE #1 2 PRODUCTION OF Sodium Chlorate

BY WJSchmidt PRODUCTION RATE 40 s/d SERVICE FACTOR 1.00

DATE 7/18/55 LOCATION Saltville, Virginia COSTS PER day (TERM) ; ton (UNIT)

ENVIRONMENT $3,000,000	UNIT	UNIT PRICE	UNITS PER TERM	UNIT CONSUMPTION	ITEM COST PER TERM	GROUP COST PER TERM	ITEM COST PER UNIT	GROUP COST PER UNIT
RAW MATERIALS						$422.42		$10.54
NaCl	ton	0.83	24.3	0.604	$20.20		$.50	
$BaCl_2$	lb.	0.06	888	22.2	53.20		1.33	
Na_2CO_3	lb.	0.014	210	5.26	2.94		0.07	
HCl	lb.	0.032	3110	77.7	99.50		2.48	
$Na_2Cr_2O_7$	lb.	0.115	57.2	1.43	6.58		0.16	
graphite	lb.	0.30	800	20	240.00		6.00	
UTILITIES						1687.78		42.18
Water	M	0.47	176	4.4	82.80		2.07	
Power, d.c.	KWH	0.00676	216,000	5400	1460.00		36.48	
Air	M	0.07	184	4.6	12.88		.32	
Power, a.c.	KWH	0.00606	21,800	546	132.10		3.31	
LABOR						288.00		7.20
OPERATING & SUPERVISORY	M.H.	$2.00	144		288.00			
REPAIR & MAINT.						288.00		7.20
LABOR (2 men 8 hrs/day)	M.H.	$2.00	96		192.00		4.80	
MATERIAL & OVERHEAD 50%					96.00		2.40	
SUPPLIES & MISC. 1% inv./year						82.20		2.06
LABORATORY 1 chemist at $450/month						15.00		0.38
TRANSPORTATION								
TOTAL OPERATING COST								59.02
DEVELOPMENT								
OVERHEAD						1098.40		27.50
PLANT 25% Operating Labor					72.00		1.80	
MAINTENANCE 100% oper. labor + 1.5% inv./year					411.00		10.34	
TAXES & INSURANCE 0.7% inv./year					58.40		1.46	
DEPRECIATION 6.67%/year					557.00		13.90	
MANUFACTURING COST								86.52
PRODUCTION COST								97.03

ESTIMATE NO. 2 PRODUCTION OF Sodium Chlorate
BY WJSakowski PRODUCTION RATE 40 t/d SERVICE FACTOR 100 %
DATE 7/18/55 LOCATION Saltville, Virginia COSTS PER day (TERM) ton (UNIT)

INVESTMENT $3,000,000	UNIT	UNIT PRICE	UNITS PER TERM	UNIT CONSUMPTION	ITEM COST PER TERM	GROUP COST PER TERM	ITEM COST PER UNIT	GROUP COST PER UNIT
RAW MATERIALS						$422.42		$10.54
NaCl	ton	0.83	24.3	0.604	$20.20		$.50	
$BaCl_2$	lb.	0.06	888	22.2	53.20		1.33	
Na_2CO_3	lb.	0.014	210	5.26	2.94		0.07	
HCl	lb.	0.032	3110	77.7	99.50		2.48	
$Na_2Cr_2O_7$	lb.	0.115	57.2	1.43	6.58		0.16	
graphite	lb.	0.30	800	20	240.00		6.00	
UTILITIES						1687.78		42.18
FUEL								
STEAM	M	0.47	176	4.4	82.80		2.07	
POWER, d.c.	KWH	0.00676	216,000	5400	1460.00		36.48	
WATER	M	0.07	184	4.6	12.88		.32	
AIR								
Power, a.c.	KWH	0.00606	21,800	546	132.10		3.31	
LABOR						288.00		7.20
OPERATING	M.H.	$2.00	144		288.00			
MONTHLY								
OVERHEAD								
REPAIR & MAINT.						288.00		7.20
LABOR 12 men 8 hrs/day)	M.H.	$2.00	96		192.00		4.80	
MATERIALS								
OVERHEAD 50%					96.00		2.40	
SUPPLIES & MISC. 1% inv./year						82.20		2.06
LABORATORY 1 chemist at $450/month						15.00		0.38
TRANSPORTATION								
TOTAL OPERATING COST								59.02
DEVELOPMENT								
OVERHEAD						1098.40		27.50
DIRECT 25% Operating Labor					72.00		1.80	
INDIRECT 100% oper. labor + 1.5% inv./year					411.00		10.34	
TAXES & INSURANCE 0.7% inv./year					58.40		1.46	
DEPRECIATION 6.67%/year					557.00		13.90	
MANUFACTURING COST								86.52
PRODUCTION COST								97.06
CREDIT FOR BYPRODUCTS								
NET PRODUCTION COST								

NOTES Sodium chlorate sells for $175/ton.

Table III

Financial Criteria Sheet

Sodium Chlorate Production Based

on J. K. Davidson's Figures

1. Data:

a. Estimated New Investment		$ 3,000,000.00
b. Estimated Plant Capacity/year		14,400 tons
c. Regular Depreciation Allowance		6.67%
d. Emergency Depreciation Allowance		---
e. Selling Price/ton		$175.00
f. Cost of Brine/ton		0.85
g. Production Cost (Less Depreciation)		108.88

2. Profit and Loss Calculation:

a. Estimated Gross Sales/year		$ 2,520,000.00
b. Cash Cost of Production (Less Depreciation)	$ 1,570,000.00	
c. Sales and Administration (10% of sales)	252,000.00	
d. Gross Cash Profit		698,000.00

3. Tax Calculation:

a. Gross Cash Profit		$ 698,000.00
b. Depreciation, Regular	$ 200,000.00	
c. Depreciation, Emergency	----	
d. Taxable Income		498,000.00
e. Tax, 50%	249,000.00	
f. Net Income		249,000.00

4. Cash Throw-Off:

a. Gross Cash Profit		$ 698,000.00
b. Tax, 50%	$ 249,000.00	
c. Net Cash Throw-Off		449,000.00
d. Plant Cost	3,000,000.00	
e. Cash Gain		449,000.00
f. % Cash Gain		15%

5. Profit and Loss Basis:

on J. K. Davidson's Figures

1. Data:

a. Estimated New Investment	$ 3,000,000.00
b. Estimated Plant Capacity/year	14,400 tons
c. Regular Depreciation Allowance	6.67%
d. Emergency Depreciation Allowance	---
e. Selling Price/ton	$175.00
f. Cost of Drums/ton	0.83
g. Production Cost (less Depreciation)	108.88

2. Profit and Loss Calculation:

a. Estimated Gross Sales/year		$ 2,520,000.00
b. Cash Cost of Production (less Depreciation)	$ 1,570,000.00	
c. Sales and Administration (10% of sales)	252,000.00	
d. Gross Cash Profit		698,000.00

3. Tax Calculation:

a. Gross Cash Profit		$ 698,000.00
b. Depreciation, Regular	$ 200,000.00	
c. Depreciation, Emergency	---	
d. Taxable Income		498,000.00
e. Tax, 50%	249,000.00	
f. Net Income		249,000.00

4. Cash Throw-Off:

a. Gross Cash Profit		$ 698,000.00
b. Tax, 50%	$ 249,000.00	
c. Net Cash Throw-Off		449,000.00
d. Plant Cost	3,000,000.00	
e. Cash Gain		449,000.00
f. % Cash Gain		15%

5. Profit and Loss Basis:

a. Cost of Plant	$ 3,000,000.00	
b. Gross Cash Profit		$ 698,000.00
c. Depreciation, Regular	200,000.00	
d. Depreciation, Emergency	---	
e. Tax, 50%	249,000.00	
f. Net Profit		249,000.00
g. Percent Return on Investment		8.3%
h. Payback Time, Years		6.7 years

Table IV

Financial Criteria Sheet

Sodium Chlorate Production Based on Most Optimistic Figures

1. Data:

a.	Estimated New Investment	$ 3,000,000.00
b.	Estimated Plant Capacity/year	14,400 tons
c.	Regular Depreciation	6.67%
d.	Emergency Depreciation	----
e.	Selling Price/ton	$175.00
f.	Cost of Brine/ton	0.85
g.	Production Cost (Less Depreciation)	83.51

2. Profit and Loss Calculation:

a.	Estimated Gross Sales/year		$ 2,520,000.00
b.	Cash Cost of Production (Less Depreciation)	$ 1,200,000.00	
c.	Sales and Administration (10% of sales)	252,000.00	
d.	Gross Cash Profit		1,068,000.00

3. Tax Calculation:

a.	Gross Cash Profit		$ 1,068,000.00
b.	Depreciation, Regular	$ 200,000.00	
c.	Depreciation, Emergency	----	
d.	Taxable Income		868,000.00
e.	Tax, 50%	434,000.00	
f.	Net Income		434,000.00

4. Cash Throw-Off:

a.	Gross Cash Profit		$ 1,068,000.00
b.	Tax, 50%	$ 434,000.00	
c.	Net Cash Throw-Off		634,000.00
d.	Plant Cost	3,000,000.00	
e.	Cash Gain		634,000.00
f.	% Cash Gain		21.1%

5. Profit and Loss Basis:

1. Data:

a. Estimated New Investment	$ 3,000,000.00
b. Estimated Plant Capacity/year	14,400 tons
c. Regular Depreciation	6.67%
d. Emergency Depreciation	----
e. Selling Price/ton	$175.00
f. Cost of Brine/ton	0.83
g. Production Cost (Less Depreciation)	83.51

2. Profit and Loss Calculation:

a. Estimated Gross Sales/year		$ 2,520,000.00
b. Cash Cost of Production (Less Depreciation)	$ 1,200,000.00	
c. Sales and Administration (10% of sales)	252,000.00	
d. Gross Cash Profit		1,068,000.00

3. Tax Calculation:

a. Gross Cash Profit		$ 1,068,000.00
b. Depreciation, Regular	$ 200,000.00	
c. Depreciation, Emergency	----	
d. Taxable Income		868,000.00
e. Tax, 50%	434,000.00	
f. Net Income		434,000.00

4. Cash Throw-Off:

a. Gross Cash Profit		$ 1,068,000.00
b. Tax, 50%	$ 434,000.00	
c. Net Cash Throw-Off		634,000.00
d. Plant Cost	3,000,000.00	
e. Cash Gain		634,000.00
f. % Cash Gain		21.1%

5. Profit and Loss Basis:

a. Cost of Plant	$ 3,000,000.00	
b. Gross Cash Profit		$ 1,068,000.00
c. Depreciation, Regular	200,000.00	
d. Depreciation, Emergency	----	
e. Tax, 50%	434,000.00	
f. Net Profit		434,000.00
g. Percent Return on Investment		14.5%
h. Pay-Out Time, Years		4.7 years

[fol. 898] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 2

Olin Mathieson Chemical Corporation
JOL File

Dr. B. H. Wojcik 1931 Baltimore
WWN:krr Baltimore

May 8, 1956
J. O. Logan
L. E. Russell

Sodium Chlorate—Market Survey—Pulp Industry

I am attaching a list of pulp mills, grouped by states, with estimated consumptions of sodium chlorate in tons per day for 1956 and 1959. Some figures are based upon fairly accurate knowledge of present ClO_2 production but many were obtained by peering into my crystal ball. I believe they are, if anything, conservative.

West Coast mills are not included. We could probably locate a plant to reach all mills listed.

No figure was available for consumption of chlorate as a weed killer, but annual production rate is given for 1953 and estimated for 1954.

Very truly yours, W. W. Northgraves, Technical Service attached.

Fla.	10.5
Ga.	17.5
N. C.	14
	42.0
	T./D.

The letter in parenthesis after the name of each mill indicates the type of ClO_2 process used or to be used.

Review for Brunswick and other locations.

40 T./D. or 10 T./D. pilot plant.

[fol. 899] Olin Mathieson Chemical Corporation

	1956	1959
Alabama		
Brewton—National Container (M?)	0	6
Coosa Pines—Coosa River Newsprint Co. (M)	0	2
Demopolis—Gulf States (M)	0	5
Mobile—I. P. Co (M?)	0	3.5
Naheola—Marathon (M?)	0	3
		19.5
Arkansas		
Crossett—Crossett (M)	2	2
Pine Bluff—I. P. Co (?)	0	4
		6
Florida		
Fernandina—Rayonier, Inc. (S)	1.5	1.5
Foley—Buckeye Cellulose (M)	3	6
Palatka—Hudson P & P (S)	0	3
		10.5
Georgia		
Brunswick—Brunswick P & P (S)	0	2
Jesup—Rayonier, Inc. (S)	5.5	10
St. Marys—St. Marys Kraft Corp. (S)	5.5	5.5
		17.5
Louisiana		
Bastrop—I. P. Co. (M)	2	3
Monroe—O.M.C.C. (M)	0	4
Springhill—I. P. Co. (M)	2	3
		10
Maine		
Great Works—Penobscot Chem. Fibre (M)	0	2
Lincoln—Eastern Corp. (?)	0	2
		4
Michigan		
Filer City—American Boxboard (S)	0	2
		2
Mississippi		
Moss Point—I. P. Co. (M)	2	3
Natchez—I. P. Co. (M)	15	7
		10
New York		
Ticonderoga—I. P. Co. (S)	1	1
		1
North Carolina		
Acme—Riegel Paper Corp. (S)	6	8
Canton—Champion P & F (M)	3	6
		14

[fol. 900] Olin Mathieson Chemical Corporation

	1956	1959
Pennsylvania		
Spring Grove—P. H. Glatfelter Co. (S)	3.5	4
Tyrone—West Virginia P & P (S)	0	2
		6
Texas		
Evadale—East Texas P & P (M)	3.5	4
Lufkin—Southland Paper Mills (S)	0	2
Pasadena—Champion P & F (M)	3	4
		10
Virginia		
Covington—West Virginia P & P (M)	3	4
Franklin—Camp Mfg. Co. (S)	4	4
		8
Wisconsin		
Nekoosa—Nekoosa-Edwards Paper Co. (S)	0	2
	52	120.5
O.M.C.C.—Niagara Falls, N. Y.	7	8
Total	59	128.5
Total for 350 day year	20,750	45,000

Phytocidal applications—no information
The following from Chemical Statistics Handbook, 1955 (MCA)

	1953	1954
Production	43,221	36,438*
Imports	962	
	44,183	

* Based upon 1st 6 months.

[fol. 901] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 3

Date: July 5, 1956.

Olin Mathieson Chemical Corporation

To: Dr. N. O. Stein at 460 Park Avenue
From: Russell Hopkinson at 460 Park Avenue

N. O. Stein.

Why should not Olin Mathieson Make:

1. Sodium chlorite (sod chlorate)
2. Ammonium perchlorate.

RH, Russell Hopkinson.

[fol. 902] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 4

Olin Mathieson Chemical Corporation

7/18/56.

Mr. R. Hopkinson, 460 Park Ave., N. Y.
J. O. Logan, Baltimore

D. W. Drummond
N. O. Stein—N. Y.
B. H. Wojcik

Chlorates and Perchlorates

Acknowledging your memo of July 13th, I think it is very timely that we should consider the subject. Actually, the Hooker-Oldbury merger has led me to feel we should take positive action on chlorates and I am undertaking certain negotiations which might lead to developments in this connection.

It is my understanding that the Aviation Division is currently doing work on perchlorates and by copy of this memo, I am asking Wojcik to review the perchlorate picture and indicate whether the Aviation Division work is pertinent

to our own interest, and if not, to advise the status of our own knowledge of perchlorate production.

As soon as we have a few more facts at hand, we will be in touch with you for review.

J. O. Logan.

[fol. 903] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 5

July 10, 1956.

Mr. R. Hopkinson (2), 460 Park Ave., N. Y. C.
N. O. Stein, 460 Park Ave., N. Y. C.

Chlorates Sodium Chlorate—Ammonium Perchlorate

This will remind you of our discussion on the train to New Haven on July 6 when I tried to answer the questions you raised in your memorandum to me of July 5, viz.; why should not OMCC make sodium chlorate and ammonium perchlorate?

We sell sodium chlorite products—trade names, Textone, C_2, Technical Grade, both in solid form and solutions. These chemicals were introduced by Mathieson to the chemical trade in the early 1940s.

We purchase sodium chlorate from our neighbors at Niagara Falls, Oldbury Electrochemical Company, and use it in the manufacture of our chlorites.

Ammonium perchlorate is made from sodium perchlorate which in turn is made from sodium chlorate in special electrolytic cells. We therefore have a good reason for getting into the sodium chlorate manufacturing business and this has been the subject of discussions on several previous occasions. You will remember that I told you of our obtaining the consulting services of an engineer familiar with this production who gave on a confidential basis information to Joe Baker and Dr. Gardiner at Niagara Falls regarding sodium chlorate production methods.

Mention was made of the predominance in the field of chlorate production of Oldbury and also that American Potash & Chemical Corporation recently acquired the facilities of Western Electrochemical Company at Henderson,

Nevada, near Boulder Dam, where large-scale production of chlorates is practiced. Oldbury has plants in Canada through their associated company, the Electric Reduction Company of Canada, which has recently built a large plant near Vancouver, B.C. and operates a plant at Buckingham, Quebec. Oldbury operates plants at Niagara Falls, New York and in Mississippi. Pennsalt is another manufacturer of chlorates.

N. O. Stein.

[fol. 904] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 6

Olin Mathieson Chemical Corporation

July 13, 1956.

Mr. J. O. Logan, Baltimore
Russell Hopkinson, 460 Park Ave., N. Y.

D. W. Drummond
N. O. Stein

Chlorates and Perchlorates

For many reasons it seems to me this company should be in the business of manufacturing chlorates and perchlorates. This matter was looked into several years ago and a certain amount of know-how developed at that time. Now that through our efforts the application of chlorine dioxide to pulp bleaching has reached such large proportions, it is all the more important that we get into this business.

Potentially large uses for the perchlorates are developing which makes the general picture still more interesting.

I notice today that Oldbury Electrochemical will be merged with Hooker and this may create an aggressive combination in this field. The subject therefore is an urgent one.

I believe we could assist you in reviewing this subject, which I would be glad to do at your convenience.

Russell Hopkinson.

[fol. 905] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 7

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.502 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Rep. By
J. O. Logan (3)				
B. H. Wojcik				
B. H. Nicolaisen				
W. C. Gardiner	X	X		
A. J. Holmes			X	X
G. D. Byrkit				
R. E. Maizell				
S-R. C. Harshman				
S-T. H. Dexter				
S-C. M. White (Genesee)				

Charge No. 63-1-743-100-6207

Report Dated: July 26, 1956

Typed: August 2, 1956 (DP)

Production of Sodium Chlorate

Approved By: W. C. Gardiner.

Dated: 8/2/56.

Signed: A. J. Holmes, DJP.

Dated: 8/2/56.

[fol. 906] Table of Contents

	Page No.
I. Summary	1
II. Objective	2
III. Introduction	2
IV. Pennsylvania Salt Manufacturing Company	2-3
V. Chlorate Cells	3-5
1. I. G. Farbenindustrie	3
2. Oldbury Electrochemical Company	3-4
3. Cardox Corporation	4
4. Western Electrochemical Corporation	4
5. International Minerals and Chemical Corporation	4
6. U. S. Department of Agriculture	4-5
7. Crushed Graphite Anode Cell (CGA)	5
VI. Cost Estimation	5-6
1. Investment	5
2. Production Costs	6
VII. Discussion	6-7
1. Oldbury Cell	6
2. CGA Cell	6-7
3. U. S. Department of Agriculture Cell	7
VIII. Conclusions	8
IX. Recommendations	9
X. Attachments	10
Tables I, II, III, IV, V, VI	

[fol. 907] I. Summary

The general position of the four U. S. sodium chlorate producers is discussed with special emphasis on Pennsylvania Salt Manufacturing Company.

Available technical details of the Oldbury, Western Electrochemical, International Minerals and Chemicals, Cardox, Dept. of Agriculture and the Olin Mathieson Chemical Corporation's Crushed Graphite Anode cells are discussed. No information on Penn Salt cells is available. Preliminary cost estimates were made on the basis of 40 tons of sodium chlorate per day for the three plants that had sufficient information available: Oldbury, U. S. Dept. of Agriculture and Crushed Graphite Anode Cell. Production costs were $126.47, $109.67 and $109.29 per ton of sodium chlorate respectively. The % Return would be 4.6, 9.5 and 8.1% on Investments of $3,000,000, $2,709,000 and $3,148,000 respectively. Pay Out Times were 8.9, 6.2 and 6.8 years respectively. There is doubt with respect to the basic information on each of these cells so that each should continue to receive consideration.

It is recommended that "know-how" be purchased from Penn Salt, Electro Reduction or other producers if immediate construction of a plant is required. If time for development is permitted, then evaluation of the three known cell designs should continue and detailed cost estimates of the chlorate recovery plant made.

[fol. 908] II. Objective

This survey was made to give an over-all picture of the sodium chlorate producers in the United States and to review our knowledge of electrolytic cells for the production of sodium chlorate.

III. Introduction

A previous Survey Report H-35.501 by W. J. Sakowski indicated that the use of the Oldbury cell as described by J. Knox Davidson might lead to marginal operation if operating costs were as high as Davidson stated. The possibility of using a cell of different design to minimize these operating costs was investigated and it was decided that a crushed graphite anode (CGA) cell be compared in performance to

the Davidson cell on a laboratory scale. The CGA cell compared favorably so work has continued on improving this cell. These two cells will be compared technologically and economically with the I.G. Farbenindustrie, Western Electrochemical, International Minerals, Cardox, and U. S. Department of Agriculture cells.

Special emphasis is given to the position of Pennsylvania Salt Manufacturing company in the domestic chlorate production picture. No information is available on their cell for comparison with the above cells.

Sodium chlorate is manufactured by four companies in the United States today; Oldbury Electrochemical at Niagara Falls, New York and Columbus, Mississippi; Western Electrochemical Corporation, a subsidiary of American Potash and Chemical Corporation, at Henderson, Nevada; Cardox at Claremore, Oklahoma; and Pennsylvania Salt Manufacturing Company, at Portland, Oregon. 1955 production of $NaClO_3$ was 46,600 tons. Western Electrochemical primarily manufactures potassium perchlorate from their chlorate while Cardox's output is relatively small, mainly captive. National production in 1954 was 37,800 tons of which Penn Salt made about 4%; 800 to 1200 tons.

IV. Pennsylvania Salt Manufacturing Company

A news item appearing in the July 1956 issue of "Chemical Engineering" and the May 22, 1956 issue of the "Journal of Commerce" states that Pennsylvania Salt Manufacturing Company has announced an improved electrolytic cell for making sodium chlorate. First installation of the new cells will be at the company's Portland, Oregon plant where a complete bank will be put into commercial operation by early 1957. Details of the improvement are being kept under wraps until the full-scale trial proves successful and its new patents issue.

An article in the November 1944 issue of "Chemical and Metallurgical Engineering" described the Penn Salt Chlorate plant at Portland, Oregon as follows:

Solar salt obtained from California is stored in tanks and later dissolved and pumped to a purification unit where [fol. 909] calcium and magnesium salts are precipitated in concrete tanks. This purified salt solution is fed to the elec-

trolysis cells. These cells operate in electrical series of 500-600 volts at 2000-3500 amperes. Current density in the cells is 74-185 amps./ft.^{2}. Mercury arc rectifiers are used for converting the A.C. power to D.C. The cells operate at 29-32°C. Cell liquors after electrolysis are clarified by filtration and fed to a two-stage evaporator for concentration, after which separation occurs in crystalizers with the sodium chlorate crystals passing to refining tanks for treatment. Final separation is obtained by use of batch centrifuges. The mother liquor is returned to the cell feed tanks for adjustment to final strength and volume. Drying of the crystals takes place in heated-air, rotary dryers from which the material passes to grinding, screening and packing operations, all of which are protected by dust control equipment.

In 1946 Penn Salt obtained a patent (2,628,935) for the electrolytic production of chlorates. Chlorine gas is used to acidify the cell liquor before it enters the cells, thus saving the cost of hydrochloric acid. It is believed that they may be using blow-off chlorine in this operation.

V. Chlorate Cells

Technical details of various cells for the electrolytic manufacture of chlorate are summarized below:

1. I. G. Farbenindustrie, Bitterfeld, Germany

A relatively complete description of the chlorate cells and plant are given in the FIAT Final Report No. 732. These cells operate at 8000-9000 amperes with 76 cells in series, each cell at 3.5 volts. The anodes are hollow magnetite, the cathodes of perforated steel. Cell temperatures are 60-75°C. with current efficiencies of 85-90%. Anode consumption is 3.5 lb./ton $NaClO_3$ produced. Power consumption is 6800 K.W.H. per ton $NaClO_3$. The cells operate on a continuous cascade cycle. This cell requires 50 sq. ft. of floor space per ton day. Magnetite for these cells is not available in this country.

2. Oldbury Electrochemical Company (from J. Knox Davidson, Consultant)

J. Knox Davidson was retained by Mathieson in 1952 as a consultant on chlorate manufacture. He was formerly a civil engineer with one of the companies affiliated with Oldbury Electrochemical Company. The operating characteristics of the cell that he gave Mathieson may be in error because he did not have a chemical background. He submitted a detailed drawing for a bipolar, 24 cell unit and a flow sheet for a complete chemical recovery plant. According to Davidson this cell would require 7600 K.W.H.-D.C. per ton $NaClO_3$ and 56 pounds of graphite/ton of $NaClO_3$. This cell operates at 50°C. at a 60-70% over-all current efficiency. [fol. 910] The cell and its electrolyte holding tank requires 230 sq. ft. of floor space per ton day. The operating characteristics of this cell seem very poor in comparison to values published for other cells. It is hard to believe that such a cell is operated so inefficiently by Oldbury who is the major producer of $NaClO_3$ in this country.

3. Cardox Corporation

An article appearing in the Transactions of the Electrochemical Society, Vol. 92, pg. 55-65, (1947) describes the chlorate cell used by Cardox Corporation at Claremore, Oklahoma. This cell has graphite bars for anodes and steel plates for cathodes. Graphite is consumed at a rate of 20 pounds per ton of $NaClO_3$ produced. Cell voltage is 3.1-3.5 volts at 1600 amperes. Current efficiency is 85-90%. The cell operates at 35°C., 5600 K.W.H. of d.c. electricity are required to make one ton of $NaClO_3$. Floor space required for cells to produce one ton per day is 42 sq. ft.

4. Western Electrochemical Corporation

An article appearing in "Chemical and Metallurgical Engineering", Vol. 51, pg. 108-9, 130-3, Dec. 1944 describes Western Electrochemical's chlorate cell. This cell operates with continuous feed and continuous product withdrawal. Anodes are made of graphite, cath-

odes of steel. Cell voltage is 3.0-3.5 volts at 2500 amperes, current efficiency is 75%. 6400 K.W.H. of d.c. electricity are required to make one ton of chlorate.

5. International Minerals and Chemical Corporation

This corporation's cell is described in an article appearing in Vol. 92 of the "Transactions of the Electrochemical Society", pg. 15-21, 1947. This cell produced only potassium chlorate but the same cell could be used to make the sodium compound. The anodes are impregnated graphite and the cathodes are perforated steel plates. Cell voltage is about 3 volts at 3,000 amperes. No values are available on the current efficiency, power or graphite consumption of this cell. This cell requires 100 sq. ft. of floor space to produce one ton per day of $NaClO_3$.

6. U. S. Department of Agriculture

This cell was developed by the Department of Agriculture and is therefore public information. A detailed description of this cell and its operation was described by McLaren in Vol. 79, "Transactions of the Electrochemical Society" pg. 93-109 (1941). This cell consists of a 2" diameter cylindrical graphite anode 2 ft. long surrounded by 10 cathodes made of ¼" diameter steel rods. This cell operates at 20-100 amperes at a voltage [fol. 911] of 2.8-3.9 volts. Power consumption is 4200-6000 KWH/ton of chlorate produced. Operating temperature is 40°C. with a current efficiency of 85-90%. Graphite consumption is 8-12 pounds per ton of chlorate made. This cell operates batchwise. It requires about 100 sq. ft. of floor space per ton day of chlorate.

7. Crushed Graphite Anode Cell (CGA)

Dr. W. C. Gardiner suggested the possible use of the German HCl electrolysis cell for the production of chlorates. This is a bipolar cell with a ribbed graphite cathode, a cloth diaphragm, and a crushed graphite anode. The crushed graphite that is consumed in the operation of this cell could be supplied at low cost from waste anodes from chlorine plants. From laboratory

studies, it is predicted that the CGA cell would operate at 2400 amperes with 4.3-5.0 volts per cell. Power consumption would be 6500-7800 K.W.H-d.c. per ton of sodium chlorate. The cell would operate at 45°C. with a current efficiency of 85-90%. HCl consumption in this cell would be low in comparison to other chlorate cells. Continuous rather than batch operation would be used with this cell. Approximately 100 sq. ft. of floor space per ton day would be required.

VI. Cost Estimation

Production cost estimates were made for 40 ton per day sodium chlorate at Saltville using the three cells on which sufficient information was available, namely, Oldbury, U. S. Department of Agriculture and the Crushed Graphite Anode.

1. Investment

The Oldbury plant at Columbus, Mississippi for 35 tons per day was reported to cost $3,500,000 including service buildings and another small chemical plant. It is assumed that the chlorate facilities only for a 40 ton plant would cost $3,000,000. We have recently estimated the cost of an Oldbury cell from the detailed drawings supplied by Davidson. The chlorate recovery plant was estimated as the difference between $3,00,000 and the cost of cells and this cost was assumed to be common to all types of cells. The other two types of cells were estimated. Comparative Cell Costs and Plant Investments are summarized as follows:

Type of Cell	Cost of Cells	Plant Investment
Oldbury	$ 440,000	$3,000,000
Crushed Graphite Anode	588,000	3,148,000
U.S. Dept. of Agriculture	149,000	2,709,000

[fol. 912] 2. Production Costs

Production costs have been estimated on the following assumptions:

	Oldbury	CGA	Dept. of Agriculture
Graphite—lb./ton	56	0	12
HCl—lb./ton	77.7	0	130
Electricity—KWH/ton	7600	6600	6000

All other costs are the same or proportional to plant investment. Details appear in Tables I, II and III. Financial Criteria have also been estimated in Tables IV, V and VI and the results are as follows:

	Oldbury	CGA	Dept. of Agriculture
Production Cost	$126.47/ton	$109.99/ton	$109.67/ton
Production Cost (Less Depreciation)	112.57/ton	95.69/ton	97.27/ton
% Return on Investment	4.6%	8.1%	9.5%
Pay-Out Time, Years	8.9 yrs.	6.8 yrs.	6.2 yrs.

VII. Discussion

1. Oldbury Cell

The Production Cost of sodium chlorate based on information from J. Knox Davidson is comparatively high. However, as was stated earlier in this report, Mr. Davidson was not sure of his operating numbers so there is a definite possibility that they may be in error. On the basis of information obtained from the literature it would seem highly probable that this cell could be operated much more efficiently than Davidson describes.

2. CGA Cell

The cost of this cell is based on a full-size cell built for HCl electrolysis this year. The production capacity was based on laboratory data but the optimum operating rate has not been determined. The high cell cost might be reduced by modifications of the present design because of chlorate production rather than HCl electrolysis. The relation between power cost and production rate has not been determined but consistent conditions were chosen for this estimate. The high cell voltage and the high cell cost are not in its favor. Fac- [fol. 913] tors in its favor are: little or no cost for crushed graphite, and very small consumption of hydrochloric acid.

3. U. S. Department of Agriculture Cell

A very complete description of this cell and its operation is reported in the literature as previously cited. Although this cell is small, 40-150 amperes/cell, it reportedly operates very efficiently with a low rate of graphite consumption. A 40 ton per day plant would require 17,000 cells. Design work would be necessary to adapt these cells to a production type unit. The cost of a cell was estimated from the description given in the literature.

Techniques obtained in operating the CGA cell in the laboratory may possibly be applied to the U. S. Department of Agriculture cell to cut down on the amount of acid required, thus reducing the production cost of the chlorate.

[fol. 914] VIII. Conclusions

1. Sodium chlorate is produced in the U. S. by Oldbury Electrochemical, Western Electrochemical, Pennsylvania Salt and Cardox. International Minerals made potassium chlorate during World War II.

2. We have design information on three cells, Oldbury, U.S. Department of Agriculture and one under development in our laboratory called the Crushed Graphite Anode Cell (CGA).

3. The Oldbury cell is intermediate with respect to Investment and highest in Production Cost.

4. The U.S. Department of Agriculture cell is cheapest to build and practically the same as the CGA cell to operate. The Return on Investment and Pay Out Time are best for this cell.

5. The CGA cell costs more to build and about the same to operate as the U.S. Department of Agriculture cell.

6. There is doubt with respect to the basic information on each of these cells so that each should continue to receive consideration.

[fol. 915] IX. Recommendations

1. Laboratory work should continue on evaluation of the CGA cell.

2. Engineering studies should be made on designing commercial cells based on the U.S. Department of Agriculture unit cell.

3. Continue to evaluate available cell designs. Test of one or more prototype cells in a pilot plant would probably be part of this program.

4. Engineering studies should be made on the chlorate recovery part of the plant.

5. Two alternatives must be considered if immediate commercialization is desired:

a. *Buy "know-how"—*

Pennsylvania Salt Manufacturing Company should be approached first because of present relationship and because of their west coast location.
Electro Reduction Company of Canada might sell their process since Oldbury will probably merge with Hooker.

b. *Eliminate pilot plant work and engineer a plant from present information*

The major portion of the capital investment is tied up in chlorate recovery and electrical equipment. At a capacity of 40 tons of chlorate per day, the electrolytic cells represent from $150,000 to $600,000 of the total investment, depending on the type of cell chosen. It would be possible to design and build immediately a plant using one or several types of cell, recognizing the possibility that major cell design revisions might have to be made. Cost involved in such a change might mount to $250,000. This would represent only the amount which would otherwise have been spent on pilot plant work.

If this course of action were adopted, the U. S. Department of Agriculture cell would be the logical choice for the major portion of the cell installation because of its lower predicted capitalization.

[fol. 916] X. Attachments

Table I Manufacturing Cost Estimate, Sodium Chlorate in Oldbury Cells.

Table II Manufacturing Cost Estimate, Sodium Chlorate in CGA Cell.

Table III Manufacturing Cost Estimate, Sodium Chlorate in Dept. of Agriculture Cells.

Table IV Financial Criteria Sheet—Sodium Chlorate Production in Oldbury Cells.

Table V Financial Criteria Sheet—Sodium Chlorate Production in Crushed Graphite Anode (CGA) Cells.

Table VI Financial Criteria Sheet—Sodium Chlorate Production in U.S. Dept. of Agriculture Cells.

[fol. 917] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 8

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.503 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Rep. By	Chg. No. 63-1-743-100-2011
B. H. Wojcik					
B. H. Nicolaisen					Report Dated: 10/12/56
W. C. Gardiner	X	X			
A. J. Holmes			X	X	
R. A. Turner					
G. D. Byrkit					
R. E. Maizell					
S-R. C. Harshman					
S-T. H. Dexter					
S-C. M. White					
S-B. H. Wojcik					
S-R. M. Thomas					
S-G. K. Weisse					

Chemical Production of Sodium Chlorate from Chlorine and Caustic

Approved By: W. C. Gardiner. Signed: A. J. Holmes

Date: 4/1/57. Date: 3/27/57.

BTM

Received April 4, 1957, B. H. Wojcik.

[fol. 918] Table of Contents

		Page
I.	Summary	3
II.	Objective	4
III.	Introduction	4
IV.	Technical Aspects of Chemical Chlorate Manufacture	4
V.	Economic Aspects of Chemical Chlorate Manufacture	4
VI.	Conclusions	5
VII.	Recommendations	5

Attachments

Table I, II, III, and IV

Figure 1, 2, 3, 4, 5, and 6

[fol. 919] I. Summary

The investment for a chemical chlorate plant using caustic and chlorine for raw materials would be $600,000. Return on Investment for an E-8 mercury cell plant converted to the production of sodium chlorate would be 3.3%. Increasing the load on the McIntosh cells from 33,000 to 41,000 amps would produce enough additional caustic and chlorine to make 40 tons of sodium chlorate per day. A capital expenditure of $1,500,000 would be needed to make this change. Return on this Investment would be 23% with a Pay-Out Time of 3.4 years.

[fol. 920] II. Objective

This survey was made to determine the economics of making sodium chlorate from chlorine and caustic produced in an E-8 mercury cell plant.

III. Introduction

Survey Reports H-35.502 and H-35.504 by A. J. Holmes discussed several electrolytic cells and recovery processes for the production of sodium chlorate. Cost estimates of plants utilizing these cells were made. The question arose as to the possibility of economically making sodium chlorate chemically by combining chlorine and caustic soda.

IV. Technical Aspects of Chemical Chlorate Manufacture

The chemical reaction involved in making sodium chlorate from caustic and chlorine is: $3Cl_2 + 6NaOH \rightarrow NaClO_3 + 5NaCl + 3\ H_2O$. A typical process using this reaction was designed as a basis for determining the cost of such a plant.

Hot wet chlorine gas in introduced into a ceramic tower countercurrent to hot 50% caustic solution. The heat of reaction of these two materials evaporates about 62% of the water in the system. The salt formed from the reaction is not completely soluble in the remaining water so about 86% of the sodium chloride formed is precipitated and removed by a filter following the reaction step. The remaining water is removed by evaporation in a recirculating stream. Judicius evaporation and cooling result in the separation of sodium chloride and chlorate as crystals on separate filters.

The sodium chlorate is then washed, dried and stored for shipment in tank cars. The sodium chloride is returned to the mercury cell plant. Figure 1 is a flow diagram of the process. Figure 2 is the sodium chloride, sodium chlorate solubility curve. Table I is the list of chlorate plant equipment required, including size, cost, and materials of construction.

V. Economic Aspects of Chemical Chlorate Manufacture

Cost estimates for making sodium chlorate chemically have been made for converting the McIntosh, Alabama plant to a chlorate plant. A second chemical chlorate production cost estimate was made in which the electrical load on the existing E-8 cells was raised from 33,000 to 41,000 amperes. The additional caustic and chlorine that would be made at this higher current would be used to make sodium chlorate. It has been proven experimentally that the E-8 cell is capable of operating at 43,000 amperes. The current would be increased from 33,000 to 41,000 amps if an additional mercury arc rectifier were added to the existing system. Two 8000 amp rectifiers, one in each cell building, would provide enough additional current to make 40 tons of $NaClO_3$/day. The fact that the increased cell load would increase the amount of power consumed for all the caustic and chlorine produced in direct ratio of the increased cell voltage has been taken into consideration. This added cost has been included in the production cost of the sodium chlorate. The investment for such an installation would include $600,000 for the chlorate plant, and $900,000 for the [fol. 921] two 8000 ampere mercury arc rectifiers and auxiliary electrical equipment. Financial criterial sheets for all four approaches have been made. A summary of these results is given in Table II.

VI. Conclusions

1. The investment required for a chemical 40 Ton/day sodium chlorate plant would be $600,000.

2. Return on Investment of the McIntosh, Ala. plant would be 3.3% if it were converted to the production of sodium chlorate. The present day construction costs for a new mercury cell plant without liquid chlorine and caustic

handling facilities would be greater than the original McIntosh plant investment thus giving a lower return on investment.

3. It would be uneconomical to use an E-8 mercury cell plant as they are now operated for the production of sodium chlorate.

4. Increasing the load on all the E-8 cells at McIntosh from 33,000 to 41,000 amperes would produce enough additional caustic and chlorine to make 40 tons of sodium chlorate per day.

5. The capital investment for increasing the load on the McIntosh plant would be $1,000,000. A total investment of $1,500,000 to include the chlorate plant would yield a 23% Return and a Pay-Out Time of 3.4 years.

6. The increased load on the McIntosh plant would in no way interfere with the present production of caustic and chlorine.

VII. Recommendations

1. The chemical chlorate process outlined in this report should be compared with the process given in H-35.506 for the manufacture of sodium chlorate from chlorine and soda ash. The most economical method of manufacture should be investigated on a laboratory scale and then be followed by a pilot plant investigation of the process.

2. An E-8 mercury cell plant should not be converted to a chlorate plant because of its poor economic advantage.

[fol. 922] Table II

Summary of Estimates

	Investment	% Return on Investment	Pay-Out Time, Years
Sodium Chlorate from McIntosh Caustic and Chlorine (65.7 T/day $NACIO_3$)	$12,500,000	3.3	10
Sodium Chlorate from added power on McIntosh Plant (40 T/day $NaClO_3$)	$ 1,500,000	23	3.4

[fol. 923] Table III

Financial Criteria Sheet

$NaClO_3$ from Caustic and Chlorine at McIntosh Plant

Investment	Existing Plant	$11,900,000
	$NaClO_3$ Plant	600,000
	Total	$12,500,000
Gross Sales (24,000 T/Yr $NaClO_3$ at $161.80/T)		3,880,000
Deduct		
Cost of Mfgr. ($118.11/T)		2,840,000
Selling and Administration (5% Sales)		194,000
		3,034,000
Gross Profit		846,000
Income Tax (52%)		440,000
Net Income After Taxes		406,000
Return on Investment		3.3%
Pay-Out Time, Years		10

[fol. 924] In United States District Court

Plaintiffs' Exhibit 9

November 20, 1956.

J. O. Logan, Baltimore.
B. H. Wojcik, Baltimore
La Societe D'Electrochimie D'Ugines Baltimore Visit—
E. M. Elchardus and J. Kraft

J. F. Newell
J. E. Baker
B. H. Nicolaisen
W. C. Gardiner
H. E. Boge
W. W. Northgraves

In your absence Messrs. Elchardus and Kraft of the above concern arranged for a visit to Baltimore, November 14. Upon their arrival I learned that they are going to be in the States for a period of about one month acquiring information on various processes of interest to Electrochimie. With us they wish to discuss the latest developments in the production of chlorite. The Agreement which our Company

has with theirs was mentioned and given as an excuse for the call. I further learned that they already have had sessions with American Cyanamid, Hercules and du Pont. Items noted below were discussed. In no case did they insist on obtaining detailed information. An exchange of general information pertaining to the subject occurred with the feeling prevailing that detailed data might be purchased.

Chlorite

Electrochimie is planning on expanding its present capacity for the manufacture of sodium chlorite from 50 tons a month to approximately 110 tons. Prior to designing a plant it was felt that perhaps O.M.C.C. could enlighten them on ways and means of reducing production costs. At the present time sodium peroxide is used in the production of the chlorite. Literature reports state we are using carbon for the reduction step, and it was their feeling such practice may reduce manufacturing costs considerably. I pointed out that although reduction with carbon is our current practice we may wish to modify our process to meet German competition. They were familiar with the German product but did not appreciate it is being imported into the States. We discussed briefly the addition of sodium nitrate to the chlorite for purposes of abating corrosion. This, they told me, was new to them. In addition, information was passed on concerning the use of chlorine dioxide repressing agents, as for example X-Tan-Assist. Reasons given them for wanting to change our process involved the color of our product and the concentration. At this point, they showed me a sample of their sodium chlorite which was in lump form but exceedingly light in color. Their product contains between 80 and 83 per cent of sodium chlorite, the remainder being water.

[fol. 925] They also asked for information on the use of sulphur dioxide for the generation of chlorine dioxide. The brochure which W. W. Northgraves uses for discussion with prospects requiring chlorine dioxide for pulp bleaching operations was discussed and a copy given to Elchardus. They told me that Degussa is manufacturing spray dried sodium chlorite.

They asked whether permission could be granted them to visit the plant at Niagara Falls. I arranged a meeting with Mr. Newell who has given them permission to see our plant Thursday, November 29.

Sodium Chlorate

They were surprised to learn that we are not producing sodium chlorate for the generation of chlorine dioxide. They asked how we could afford to install chlorine dioxide generators throughout the pulp industry and yet not sell them the chemicals needed for its production. Service to customers of ours that use other products of Olin Mathieson's was given as the reason. Electrochimie is the oldest producer of sodium chlorate in France. In answer to my question concerning passing detailed information on to Olin Mathieson for chlorate production, they replied it was available for sale. I was told there is no serious problem concerning corrosion of the cell or the anodes. Some of the original cells built approximately thirty years ago are still in service and good carbon anodes will last from two to four years.

The chlorate cells are being operated at 16,000 amps although sufficient flexibility is available so that the amperage can be lowered to 1,000 if desirable. They stated that consideration had been given to building a new chlorate plant in France, but Electrochimie hesitates to go ahead with construction because the pay-out time is poor on new equipment. It is only because their plant has been capitalized that they are able to show a reasonably good return on the production of the chlorate. In the event we are interested to explore further the possibility of exchanging detailed information on chlorate production with Electrochimie, we should contact the manager of the division whose name is Terestchenko.

HCL Conversion to Chlorine

Since they had mentioned the contact with Hercules regarding the conversion of HCl to chlorine, I queried them concerning their thoughts on how this reaction might most economically be carried out. Mr. Kraft did not hesitate to say that if they had to move immediately on the conversion

of HCl to chlorine they most likely would consider the West Vaco process involving the use of copper chloride. They have not considered seriously the electrolysis of HCl in accordance with the German practice simply because they [fol. 926] have been told that the graphite consumption per ton of chlorine produced is abnormally high. I suggested that when they visit our Niagara Falls plant this subject be discussed in greater detail with our Dr. W. C. Gardiner.

Organic Chemicals

Electrochimie is expanding its interests in the manufacture of organic chemicals. They discussed in detail the conversion of pentane to hexachlorocyclopentadiene and the chlorination of butane to hexachlorobutadiene. They know these products are being made by Hooker. Kraft stated Electrochimie has developed a new and simpler process for the production of the chlorides. Offhand, I could not see much of an improvement over what is being done by Hooker.

The production of chlorinated paraffins was also discussed. I was told that they are plagued with color and instability problems on chlorinated paraffin. Based on my past experience I indicated that it was necessary to use high grade paraffin and an elevated temperature for chlorination plus pure chlorine in a glass-lined vessel for the production of a high grade product.

Continuous Sodium Hypochlorite Production

I was handed a brochure which outlined in some detail a simple unit developed by Electrochimie for the production of sodium hypochlorite continuously. They had received from one of our competitors an O.M.C.C. brochure on the same subject. The only point that appeared to be of real interest to them was the use of the pH control unit. This I stated was desirable since without it good control could not be achieved.

Toward the end of our meeting I indicated that perhaps the Agreement we have between the two companies might not be permitted to continue since it may be considered as a violation of anti-trust laws. This they were not surprised to learn.

In conclusion I asked whether they could leave with me

an official list of the products being manufactured by Electrochimie. No such list was available. However, some of the products being made are:

Inorganic—

HCN, NaCN, $Zu(CN)_2$, SCNNH, Na_2O_2, H_2O_2, $NaClO_3$, $KClO_3$, $NaClO_2$, Cl_2, NaOH, F_2, HF, BF_3AlF_3, Ca, Na, Vanadium

[fol. 927] Organic:

Chlorinated Paraffin, Chlorobenzene, Chlorinated Diphenyl, Vinyl Chloride (Monomer, Acrylates, Chloral, DDT, Carbon Tetrachloride, Perchloroethylene, Methacrylates

These men were delighted with the way we received them and are looking forward to visiting our plant at Niagara Falls. I would like to recommend that, if W. W. Northgraves' schedule permits him to be in Niagara Falls on November 29, he should attend the meeting in J. Baker's office.

B. H. Wojcik

BHW:feg

[fol. 928] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 10

Market Research Report
Sodium Chlorate

December 1956

Prepared By: J. J. Hayes.
Approved: B. M. Schrauf.
Copy No.: 10.

[fol. 929] Sodium Chlorate

Contents

		Page
	Recommendations	
	Conclusions	
	Summary	
I.	Introduction	1
II.	Processes	1
	A. Sodium or Potassium Chlorate	1
	1. Indirect (Chemical) Process	3
	2. Direct (Electrolytic) Process	3
	B. Perchlorates	3
	1. Sodium Perchlorate	3
	2. Other Perchlorates	4
III.	Production Capacity	4
	A. U. S. Capacity	4
	B. Canadian Capacity	5
IV.	Production Data	5
V.	Consumpation Data	7
	A. Use Pattern	7
	1. Sodium Chlorate	7
	2. Potassium Chlorate	7
	3. Perchlorates (Potassium & Others)	8
	B. Geographic Consumption—Sodium Chlorate	8

[fol. 930]

VI.	Prices	8
	A. Sodium Chlorate	8
	B. Potassium Chlorate	10
	C. Potassium Perchlorate	10
VII.	Discussion of Markets	10
	A. Pulp & Paper	10
	B. Herbicide	11
	C. Other Applications	11
	Appendix	12

[fol. 931] Recommendations

1. The Industrial Chemicals Division should initiate immediately an engineering project aimed at:

a) developing realistic production and investment costs for chlorate plant with capacity between 10-15,000 tons/year, location of operation to be most profitable should be in southeastern section of the United States.

b) determining plant pay-out time with freight equalization being based on a sales distribution pattern involving companies utilizing the OMCC process and now purchasing other OMCC chemicals.

2. The Sales Development Department should contact Cardox Corporation in order to evaluate: the economics of Cardox cell and process; possible purchase and transfer of the equipment if feasible (may be government owned); possible contract for marketing output, if Cardox would operate plant.

3. Render a decision as to the merits of this project only after the above recommendations have been carried out.

Conclusions

1. There should be adequate sodium chlorate production capacity to supply 1959 requirements if existing, plus planned expansions, are operated at 100% of rated capacity, (1959 capacity, 92,000 tons versus requirements—83,000 tons).

2. However, if Cardox plant, currently shut down, is not reactivated, then capacity in 1959 will be slightly below demand (77,000 tons versus 83,000 tons estimated requirements).

3. Regardless of the capacity—requirements balance in 1959, OMCC should not turn down the proposal to manufacture and sell chlorate if a favorable return on investment can be realized.

4. In view of the chlorate-chlorine dioxide generating process developed by OMCC (which is licensed royalty free to the pulp industry) it would not seem unreasonable to

expect many licensees to reciprocate by purchasing chlorate from OMCC.

5. In promotion of the Solvay generating process, Allied has been marketing American Potash chlorate currently being produced in Nevada; it may continue to do same with output from American Potash's new plant in Southeast, thereby continuing a rivalry for pulp trade sales.

[fol. 932] 6. There is sufficient cause and justification from this market study, and the OMCC sales picture to propose that the company engage itself in analyzing closely the economics of producing and marketing this product.

7. It is not too late to move into this field, but time for a desicision is waning.

[fol. 933] Summary

1. Sodium chlorate production in U. S. has increased since 1947 at a rate equivalent to about 11% per year; from an output of 20,000 tons in 1947, to an estimated 53,000 in 1956 and to a projected figure of 83,000 tons in 1959. (See Fig. 2)

2. Increased production is directly related to the expanding requirements of the pulp industry which utilizes chlorate as a source of chlorine dioxide for bleaching; this application alone will consume in the vicinity of 48,000 tons of chlorate in 1959, or just about double the 1956 requirement.

3. Four companies (Oldbury, American Potash, Penn Salt & Cardox Corporation) have combined capacity of 72,000 tons as of December 1956.

4. While rated capacity far exceeded output in 1956, production level did not surpass 52,000 tons due in part to Cardox plant (15,000 ton/year) being shut down since March. Reasons for shutdown have not been ascertained.

5. Regardless of the available Cardox capacity, Oldbury and American Potash plan to install additional capacity of 5,000 and 15,000 tons respectively, raising total U. S. capacity by 1959 to about 92,000 tons.

6. U. S. producers can not look to Canada as an export market because that country will have two plants in operation by late 1957, one in Quebec the other in British Columbia.

7. Pulp application is only application influencing the use-pattern as data below indicate:

	Short Tons	
	1956	1959
Pulp Bleaching	22,200	48,000
Herbicidal Applications	19,730	20,000
All Other	11,270	14,000
	53,200	82,000

8. Geographic market distribution will find southeastern U. S. the heavy consuming area by 1959 with 27,200 tons; northeast areas second with 21,500 tons; and south central third with 14,800 tons. (See Fig. 3)

9. Oldbury and American Potash will have combined capacity of 37,000 tons in southeast and south central areas by 1959 which will be slightly under the estimated requirements of 42,000 tons. (Cardox capacity has not been included.)

[fol. 934] I. Introduction

For years Mathieson Alkali had promoted the bleaching of pulp, textiles, fats and oils via chlorine dioxide generated from sodium chlorite. None of these applications ever developed into sizable markets for chlorite because of the high cost of chlorine dioxide. About 1948 it was revealed that chlorine dioxide could be economically generated from sodium chlorate directly and at a price which would be especially attractive to the pulp industry. The merits of using chlorine dioxide in a final stage bleach to improve brightness had already been established, all that was needed was cheaper priced chlorine dioxide. Sodium chlorate was the answer to this problem.

Allied Chemical and Mathieson both developed generating processes for producing chlorine dioxide from chlorate. Merits of each will not be discussed, as they have no bearing on the market picture itself. However, it must be emphasized that the Mathieson and Allied development is the prime factor in the growth of chlorate since 1952. Both herbicidal and miscellaneous tonnage has remained fairly constant during this period.

Except for military applications, sodium chlorate was

never considered an important basic chemical. Its major commercial market was confined to herbicidal applications until the advent of pulp bleaching. In 1952 herbicidal use represented 52% of 40,000 tons produced; bleaching about 2.5% and military uses the balance. For 1956, it is estimated that of 52,000 tons production only 37% will be consumed in herbicidal uses, but pulp consumption will be up to 42%; quite an interesting highlight in comparison with 1952.

In rounding out the market picture on sodium chlorate, it was deemed advisable to include whatever information was available on potassium chlorate and perchlorates, because of the intertwining process relationships of these products and also their similar chemical properties and applications.

II. Processes

A. Sodium or Potassium Chlorate

There are two methods by which chlorate can be manufactured, one—an indirect chemical process: and the other—a direct electrolytic method. Whereas the chemical reactions in both processes are fundamentally of the same type, the means by which they are affected are different.

The fundamental reactions that occur in both processes can be described as follows:

a) Reaction of chlorine with caustic soda and water

$$2\,Cl_2 + 2\,NaOH \rightarrow NaOCl + HOCl + NaCl + HCl$$

b) Reaction of hypochlorous acid with hypochlorite upon standing

$$NaOCl + 2\,HOCl \rightarrow NaClO_3 + 2\,HCl$$

The integrated process of making chlorates and perchlorates is illustrated clearly in Fig. 1.

[fol. 935] 1. Indirect Process (Chemical)

Alkali, usually hydrated lime, is treated with chlorine to form a hypochlorite solution, which is subsequently heated and acidified by the absorption of chlorine. Upon storage, the hypochlorite reacts with the hypochlorous acid present, thereby producing a solution of calcium chlorate contaminated with calcium chloride. Treatment of the calcium chlorate solution, with either sodium or potassium

chloride, produces the respective chlorate salt. Purity of the resulting chlorate is not as high as in the electrolytic process, nor is the production cost as favorable; capital outlay for equipment on other hand is lower.

This process is not used in the United States although Mathieson at Niagara once employed this basic synthesis to produce calcium chlorate which was utilized as an intermediate in manufacture of its sodium chlorite.

2. Direct Process (Electrolytic)

While either sodium or potassium chloride brine can be electrolyzed in a diaphragmless cell to produce the respective chlorate, potassium chlorate is generally not manufactured by such a process because of the product's low solubility in water which makes recovery from the cell difficult. It is better, according to reports, to form sodium chlorate by electrolysis and then effect a double decomposition reaction with potassium chloride to obtain potassium chlorate.

As for the electrolysis theory, chlorine liberated at the anode reacts with the hydroxide to produce hypochlorite and the chloride, also with the water to form hypochlorous and hydrochloric acids. By maintaining the electrolyte at pH 6-7, favorable conditions for the reaction between hypochlorite and hypochlorous acid can be reached. Because this reaction is slow, formation of chlorate is actually effected in the body of the cell rather than at the anode. Chlorate liquor from the cell is fed into a settling tank, from which it is purified and concentrated. Electrodes in chlorate cell are steel and graphite.

B. Perchlorates

1. *Sodium Perchlorate*—is manufactured solely as an intermediate for production of potassium, ammonium or other perchlorate salts; it has no commercial value because of its high degree of hydroscopicity. It is produced from sodium chloride liquor in an electrolytic cell, similar in construction to a chlorate cell except that the anode is constructed of platinum rather than graphite. Sodium perchlorate liquor so formed is subsequently reacted with sales such as potassium chloride, ammonium chloride, etc., depending upon what chlorate salt is desired.

[fol. 936] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 11

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.504 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Rep. By	
B. H. Wojcik					Chg. No. 63-1-743-100-2011
B. H. Nicolaisen					
W. C. Gardiner	X	X			
A. J. Holmes			X	X	Report Dated: 3/1/57
R. A. Turner					
G. D. Byrkit					Report Typed: 3/26/57 CB
R. E. Maizell					
S-R. C. Harshman					
S-T. H. Dexter					
S-C. M. White					
S-B. H. Wojcik					
S-G. K. Weisse					
S-R. M. Thomas					

Electrolytic Production of Sodium Chlorate at Saltville, Va., McIntosh, Ala., Lake Charles, La.

Approved: W. C. Gardiner. Date: 4/1/57.

Signed: A. J. Holmes. Date: 2/28/57.

[fol. 937] I. Summary

Investment and production cost estimates have been made for a 40 ton/day sodium chlorate plant at Saltville, Va., McIntosh, Ala., and Lake Charles, La. Three chlorate recovery processes employing evaporation, refrigeration, and isothermal sodium chloride addition have been estimated at each of the above locations. Sodium chlorate could be produced cheapest at Saltville by the isothermal salt addition process. The following is a summary of the information obtained for this report:

Cheapest Electrolytic Process

	Saltville	McIntosh	Lake Charles
Investment	$4,600,000	$4,600,000	$4,600,000
Production Cost, $/T	105.46	118.04	113.84
Return on Investment, %	7.6	6.4	7.0
Pay-out Time, Yrs	7.2	7.7	7.4

Investment and operating costs have been received from Pechiney of France and have been compared to the above figures. It is believed that the Pechiney estimate of investment is low for construction of such a plant in the U.S. ($2,570,000). Assuming that the Pechiney plant could be built for $4,600,000 it would give the best return of any of the electrolytic chlorate plants were it built at Saltville.

Investment	$4,600,000
Production Cost, $/T	100.38
Return on Investment	8%
Pay-Out Time	6.9%

[fol. 938] II. Objective

This survey was made to determine realistic production and investment costs for a 40 ton per day $NaClO_3$ plant to be located at one of Olin Mathieson's existing southern electrochemical plants.

III. Introduction

Saltville, Va., McIntosh, Ala., and Lake Charles, La. were considered as possible sites for a 40 ton/day electrolytic $NaClO_3$ plant. Actual accounting unit costs for labor, utilities, and raw materials were obtained from Mr. Newell's office for making these estimates.

A process and plant described by J. Grolee of Pechiney in

France was transmitted to Mr. R. S. Fodor of Olin Mathieson January 3, 1597. This transmittal contained unit consumptions of labor, utilities and raw materials as well as investment for a 40 ton per day sodium chlorate plant. The investment quoted for this plant was $2,573,000 which is the cost in dollars to build such a plant in France. It is believed that an additional $2,000,000 would be required to build such a plant in the U.S.

Various methods of chlorate recovery from cell liquor were investigated. They were: 1. Evaporation of cell liquor to crystallize NaCl and cooling of the resulting liquor to crystallize $NaClO_3$: 2. Refrigeration of cell liquor to crystallize $NaClO_3$; 3. Isothermal addition of NaCl to crystallize $NaClO_3$. Production costs and plant investment for these processes were made.

IV. Technical Aspects of $NaClO_3$ Plants

A. Cells

It is assumed for the purpose of this report that the electrolysis portion of the plant is the same in all cases considered. The cells are the bipolar type. They have hollow steel cathodes that are used as heat exchangers. The anodes are made from impregnated graphite so that the electrolyte will not soak through them to damage the contacting steel cathode. These anodes are not in frames but are separated from the cathode by a 1/8" thick gasket. Thirty of these cells are clamped together to make a unit. A 40 ton $NaClO_3$/day plant would consist of five of these units in series and ten in parallel requiring a D.C. power source of 18,800 amperes and 500 volts. It is assumed that these cells would operate at 80% current efficiency using 5800 KWH/ton $NaClO_3$. [fol. 939] Assuming the investment required for the Pechiney plant is $4,600,000, the production cost for sodium chlorate is $100.38/T giving a Return on Investment of 8% and a Pay-Out time of 6.9 years.

Financial Criteria sheets have been made and are given in Table I-X. A summary of these costs and investments is given in Table XII.

VII. Conclusions

1. Capital investment for an electrolytic 40 ton/day $NaClO_3$ plant is $4,600,000-$5,000,000.

2. Minimum production cost per ton of $NaClO_3$ is $103.71, maximum $123.99.

3. Maximum return on investment for the processes and locations investigated is 7.4% at Saltville, Va. for the isothermal addition of NaCl process.

VIII. Recommendations

It is recommended that consideration be given to chemical production of sodium chlorate before making a decision on the method of manufacture. See Survey Report H-35.503, .505 and .506.

[fol. 940]

Table XII

Investment and Cost Summary

Process		Evaporation	Refrigeration	Isothermal Salt Add'n	Pechiney
Plant Investment		$4,900,000	$5,000,000	$4,600,000	$4,600,000
Raw Materials		Brine	Brine	Brine	Brine
Net Production Cost, Saltville		107.32	107.03	103.71	100.38
$/T $NaClO_3$	McIntosh.	121.97	119.51	116.19	
	Lake Chas.	115.75	115.71	112.39	
% Return on Investment	Saltville ..	6.5	6.5	7.4	8.0
	McIntosh.	4.6	4.6	6.5	
	Lake Chas.	5.3	5.3	7.1	
Pay-Out Time—Yrs.	Saltville ..	7.6	7.6	7.1	6.9
	McIntosh.	8.9	8.9	7.6	
	Lake Chas.	8.4	8.4	7.3	

[fol. 941] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 12

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.505 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Report By
J. O. Logan				
B. H. Wojcik				
B. H. Nicolaisen				
W. C. Gardiner	X	X		
R. A. Turner			X	X
G. D. Byrkit				
R. E. Maizell				
S-B. H. Wojcik				
S-R. M. Thomas				
S-R. C. Harshman				
S-G. K. Weisse				
S-T. H. Dexter				
S-C. M. White				

Chg. No. 63-1-743-100-2011

Report dated: 11/21/56-2/26/57

Report typed: 3/6/57: CB

Chemical Production of Sodium Chlorate from Caustic and Chlorine

Approved: W. C. Gardiner.

Date: March 11/57.

Signed: R. A. Turner.

Date: March 7, 1957.

[fol. 942] Summary

The economics of producing 40 tons of sodium chlorate per day from caustic and chlorine have been investigated for three sources of decomposition: (1) The Hooker S-3 cell producing 50% caustic and wet chlorine gas, (2) The Hooker S-3 cell producing cell liquor and wet chlorine gas, and (3) The Mathieson E-11 cell producing 50% caustic and wet chlorine gas. The production costs estimated for decomposition have been converted to a net cost of raw materials to the chemical chlorate section of the plant and are tabulated below with the investments for the decomposition sections of the plant.

	Hooker S-3 50% Caustic	Hooker S-3 Cell Liquor	Mathieson E-11 50% Caustic
Net Raw Materials Cost, $/Ton $NaClO_3$	$129.35	$102.85	$124.35
Investment for Decomposition equivalent to 40 T $NaClO_3$/Day	$5,400,000	$3,360,000	$5,406,000

Although the use of cell liquor from a Hooker S-3 cell as a raw material appears to be more economical, the chlorate section of the plant will have to bear the cost of the additional evaporation.

The net production cost of electrochemical sodium chlorate as reported by A. J. Holmes in Survey Report H-35.502 and H-35.504 ranged from $104 to $120 per ton. As these total production costs are less than the raw material costs for chemical chlorate it is concluded that the chemical process is not suitable for the production of 40 tons per day of sodium chlorate.

[fol. 943] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 13

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.506 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Report By	
J. O. Logan					Chg. No. 63-1-743-200-2011
B. H. Wojcik					
B. H. Nicolaisen					Report Dated: 3/6/57
W. C. Gardiner	X	X			
R. A. Turner			X	X	Report Typed: 3/7/57:CB
G. D. Byrkit					
R. E. Maizell					
S-B. H. Wojcik					
S-R. M. Thomas					
S-R. C. Harshman					
S-T. H. Dexter					
S-C. M. White					
S-G. K. Weisse					

Production of Sodium Chlorate from Soda Ash at Saltville, Virginia

Approved: W. C. Gardiner. Signed: R. A. Turner.

Date: March 11/57. Date: March 8, 1957.

Received March 21, 1957, B. H. Wojcik.

[fol. 944] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 14

Olin Mathieson Chemical Corporation

Date: 2/19/58.

To: Dr. B. H. Wojcik, at Baltimore.
From: J. O. Logan, at Baltimore.
Subject: Chlorates and Perchlorates

Copies To J. F. Newell
C. C. Hightower
W. A. King

Confirming conversation, we are to assemble our information on the economics of chlorate and perchlorate production, capital requirements, preferred location and size of plant and sales outlets.

By copy of this to Newell and Hightower, I am suggesting they designate an individual to represent Operations in the assembly of this information.

What we put together need not be final but should include a statement of where we stand with respect to the knowledge necessary to put both types of plants in operation.

Per my discussion with Hanford, we will supply this information by March 1st and he will assemble similar information from other Divisions of the Corporation interested in the field of perchlorates. He will then call a meeting of the Solid Fuels committee at which we and other Divisions will be represented and at which time decisions can be made with respect to further action leading to the possible production of these items.

B. H. W., 2/21/58. J. O. Logan.

Received February 20, 1958. B. H. Wojcik.

[fql. 945] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 14A

March 27, 1958.

Mr. J. O. Logan, Baltimore.
Mr. H. W. Schiessl, Baltimore.

B. H. Wojcik
C. C. Hightower
K. Lewis

Sodium Chlorate and Ammonium Perchlorate

As per your request to Dr. Wojcik, the following cost estimates on subject chemicals have been prepared, with the help of K. Lewis, J. Wood, and the prior reports of Dr. Gardiner's group at Niagara.

A. Sodium Chlorate—Electrolytic Process

Cost estimates for the electrolytic production of 40 tons per day sodium chlorate have been prepared by Dr. Gardiner. The best case, for Saltville, indicates a production cost of $100.38/T, with an investment of $5,154,000. At the current OPDR market price of $180/T, return on investment is 9.4 per cent, with a pay out of 6.5 years. The economic evaluation is summarized in Table I.

Published information and our own data on electrolytic chlorate are fairly extensive; operating conditions and capacities are known. However, since such a large investment is indicated, it would be advisable to obtain design data on several of the process steps on a pilot scale and to build and operate a prototype cell which could later be incorporated as one unit of the full scale plant.

B. Sodium Chlorate—Chemical Process

Chlorate may be prepared by chlorination of caustic. Assuming the chlorine and caustic for 40 tons/day chlorate are obtained by increasing the amperage on the McIntosh E-8 cells, the total investment would be $4 million for the chlorate plant and for the additional equipment to accommodate the higher currents and larger production. Production cost

would be $117.56/T sodium chlorate. A return on investment of 9 per cent is indicated, with a pay-out of 6.6 years (see Table II).

Some development on this process has already been done at Niagara, but further study is needed before commercialization.

It should be noted that the use of caustic and chlorine to make chlorate is a down grading of these products, at present market prices. The market value of the caustic and chlorine, assuming perfect conversion to chlorate, is $257 per ton chlorate, whereas the latter sells for $180/T.

[fol. 946] C. Ammonium Perchlorate

This material is produced by reacting sodium perchlorate with either ammonium chloride or with ammonia and HCl. Sodium perchlorate for this process is obtained by the electrolysis of sodium chlorate in platinum anode cells. Cell capacity information is available in the literature. The problems of anode design have been mentioned in several reports. Only general published information is available for the final conversion of sodium to ammonium perchlorate. Therefore, complete piloting of these processes would be necessary.

To produce 10 tons per day ammonium perchlorate would require an investment of $1,830,000, starting with captive sodium chlorate as the raw material. This investment would cover the electrolysis of sodium chlorate to sodium perchlorate and the metathetical conversion to the ammonium derivative.

Pricing sodium chlorate into this process at $100.38 (see Section A above), the production cost of ammonium perchlorate would be $300/T. The 1957 year end market price was $680/T. On this basis, return on investment is 26.7 per cent, with a 3.1 year pay out. The financial criteria are summarized in Table III. This, of course presupposes an internal source of sodium chlorate as the starting material at $100.38/T. If the sodium chlorate must be purchased at the market price of $180/T, production cost of ammonium perchlorate would be $420/T, yielding a return on investment of 16.0 per cent, with a 4.6 year pay out. (See Table IV.)

Another process for the manufacture of sodium perchlorate is non-electrolytic. It was developed at Niagara some years ago under government contract. The purpose of this

process was to avoid use of platinum electrodes and electrical energy. The procedure is to oxidize sodium chlorate with lead dioxide in the presence of sulfuric acid to form sodium perchlorate and lead sulfate. The latter is then oxidized in a separate step with sodium hypochlorite in the presence of caustic soda to form lead dioxide which is recycled.

[fol. 947] At the inception of the pilot plant stage of this development, the work was taken over by HEFO. We have no reports in this division to indicate how the development fared, but HEFO undoubtedly has this information, along with production cost estimates.

Generally speaking, this latter process is not as attractive as the electrolytic route to sodium perchlorate. In effect, it amounts to oxidation of sodium chlorate with chlorine (via hypochlorite), therefore, it does not obviate the expenditure of electrical energy. It has the further complications of handling, regeneration, and recovery of lead dioxide. The main advantages of the process are flexibility of location, since it does not depend on proximity to cheap power; and the elimination of a large investment in platinum for anodes. For example, the metal cost alone for a 10 ton/day perchlorate installation is about $400,000.

Market Picture

No up-to-date survey on subject materials is available, but attached is a Market Research report prepared by J. J. Hayes, December, 1956. Chemical Week, October 5, 1957, reported excess ammonium perchlorate capacity of the then current demand. Hooker Electrochemical and Foote Mineral have since announced intentions for producing lithium and ammonium perchlorates. Presently, the major outlet for ammonium perchlorate is in military application as an oxidant for solid propellants.

Original Signed By H. W. Schiessl

HWS:mea

Enclosures: Tables I, II, III, IV.

[fol. 948]

Economic Evaluation—Class Projects

Table I

See Standard Procedure No. 7 and reverse side of Original of this form for detailed instructions. Date _____

Title	Amount	Appropriation Number
Operating Division or Administrative Department	Originated by	
Plant Location / Department Name & Number	Building Name & Number	

☐ Expansion of Existing Equipment (Complete Columns A, B, and C) ☐ Equipment to Produce New Products (Complete Column B only)

PARTICULARS	A PRESENT	% SALES	B PROJECTED	% SALES	C DIFFERENCE	% SALES
INVESTMENT					0	
Gross Plant						
Inventories						
Receivables						
Sub Total			3,[illegible],000			
After Tax Expense			---			
TOTAL INVESTMENT			[illegible]			
ANNUAL SALES AND PROFITS						
Units			14,[illegible]			
Unit Selling Price			[illegible]			
Net Sales			[illegible]			
Production Costs w/o Depreciation			[illegible]			
Depreciation (Normal Rates) [illegible]			[illegible]			
Shipping and Warehousing			---			
Cost of Sales			1,[illegible],700			
Gross Profit			1,162,300			
Selling, Advertising, Administrative [illegible]les			157,700			
Pretax Profit			1,004,600			
Federal Taxes (52 %)			522,400			
NET PROFIT			482,200			
% Total Investment			[illegible]			
PAYOUT TIME — ADD BACK						
Tax Savings—Accelerated Depreciation			--			
~~Depreciation on books~~			335,800			

☐ Expansion of Existing Equipment (Complete Columns A, B, and C) | ☐ Equipment to Produce New Products (Complete Column B only)

PARTICULARS	A PRESENT	A % SALES	B PROJECTED	B % SALES	C DIFFERENCE	C % SALES
INVESTMENT						
Gross Plant						
Inventories						
Receivables						
Sub Total						
After Tax Expense						
TOTAL INVESTMENT						
ANNUAL SALES AND PROFITS						
Units						
Unit Selling Price						
Net Sales						
Production Costs w/o Depreciation						
Depreciation (Normal Rates)						
Shipping and Warehousing			---			
Cost of Sales			1,465,700			
Gross Profit			1,162,300			
Selling, Advertising, Administrative			157,700			
Prefax Profit			1,004,600			
Federal Taxes (52 %)			522,400			
NET PROFIT			482,200			
% Total Investment			9.6			
PAYOUT TIME — ADD BACK						
Tax Savings—Accelerated Depreciation			--			
Depreciation on books			306,800			
Profit — Cash Basis			789,000			
% Total Investment			15.3			
PAYOUT TIME			6.5			

OLIN 12/7-4

Prepared by

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Regional Accounting Department

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FORM 6511 858

OLIN MATHIESON CHEMICAL CORPORATION

[fol. 949]

Economic Evaluation—Class Projects

Table II

See Standard Procedure No. 7 and reverse side of Original of this form for detailed instructions. Date

Title	Amount	Appropriation Number
Sodium Silicate - 4 T/Day from Caustic & Chlorine		
Operating Division or Administrative Department	Originated by	
Plant Location / Department Name & Number	Building Name & Number	

☐ Expansion of Existing Equipment (Complete Columns A, B, and C) ☐ Equipment to Produce New Products (Complete Column B only)

PARTICULARS	A PRESENT	A % SALES	B PROJECTED	B % SALES	C DIFFERENCE	C % SALES
INVESTMENT						
Gross Plant			3,620,000			
Inventories			75,000			
Receivables			325,000			
Sub Total						
After Tax Expense						
TOTAL INVESTMENT			4,000,000			
ANNUAL SALES AND PROFITS						
Units Tons			14,600			
Unit Selling Price			180			
Net Sales			2,628,000			
Production Costs w/o Depreciation			1,476,200			
Depreciation (Normal Rates) 6.67%			240,100			
Shipping and Warehousing			--			
Cost of Sales			1,716,300			
Gross Profit			911,700			
Selling, Advertising, Administrative 6% Sales			157,700			
Pretax Profit			754,000			
Federal Taxes (52 %)			392,100			
NET PROFIT			361,900			
% Total Investment			9.0			
PAYOUT TIME — ADD BACK						
Tax Savings—Accelerated Depreciation			--			

PARTICULARS	A PRESENT	A % SALES	B PROJECTED	B % SALES	C DIFFERENCE	C % SALES
INVESTMENT						
Gross Plant			3,600,000			
Inventories			75,000			
Receivables 45 Days			325,000			
Sub Total						
After Tax Expense						
TOTAL INVESTMENT			4,000,000			
ANNUAL SALES AND PROFITS						
Units Tons			14,600			
Unit Selling Price			180			
Net Sales			2,628,000			
Production Costs w/o Depreciation			1,476,200			
Depreciation (Normal Rates) 6.67%			240,100			
Shipping and Warehousing			--			
Cost of Sales			1,716,300			
Gross Profit			911,700			
Selling, Advertising, Administrative 6% Sales			157,700			
Pretax Profit			754,000			
Federal Taxes (52 %)			392,100			
NET PROFIT			361,900			
% Total Investment			9.0			
PAYOUT TIME — ADD BACK						
Tax Savings—Accelerated Depreciation			--			
Depreciation on books			240,100			
Profit — Cash Basis			602,000			
% Total Investment			15.1			
PAYOUT TIME Years			6.6			

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FORM 6511 555

OLIN MATHIESON CHEMICAL CORPORATION

500

Economic Evaluation—Class Projects

Table III

See Standard Procedure No. 7 and reverse side of Original of this form for detailed instructions. Date _____

Title	Amount	Appropriation Number
[illegible] Perchlorate 10 T/Day		
Operating Division or Administrative Department	**Originated by**	
[illegible] Caustic Chlorate at Same Location		
Plant Location / **Department Name & Number**	**Building Name & Number**	

☐ Expansion of Existing Equipment (Complete Columns A, B, and C) ☐ Equipment to Produce New Products (Complete Column B only)

PARTICULARS	A PRESENT	A % SALES	B PROJECTED	B % SALES	C DIFFERENCE	C % SALES
INVESTMENT						
Gross Plant			1,830,000			
Inventories			[illegible]			
Receivables [illegible] Days			396,000			
Sub Total			2,226,000			
After Tax Expense			--			
TOTAL INVESTMENT			2,226,000			
ANNUAL SALES AND PROFITS						
Units			3,650			
Unit Selling Price			600			
Net Sales			2,[illegible]2,000			
Production Costs w/o Depreciation			972,000			
Depreciation (Normal Rates) 6.67%			122,100			
Shipping and Warehousing			--			
Cost of Sales			1,095,000			
Gross Profit			1,387,000			
Selling, Advertising, Administrative 6% Sales			148,900			
Pretax Profit			1,238,100			
Federal Taxes (52 %)			643,810			
NET PROFIT			594,290			
% Total Investment			26.7			
PAYOUT TIME — ADD BACK						
Tax Savings—Accelerated Depreciation						
Depreciation on books			122,061		7.6	

PARTICULARS	PRESENT	% SALES	PROJECTED	% SALES	DIFFERENCE	% SALES
INVESTMENT						
Gross Plant			1,830,000			
Inventories			90,000			
Receivables 45 Days			306,000			
Sub Total			2,226,000			
After Tax Expense			--			
TOTAL INVESTMENT			2,226,000			
ANNUAL SALES AND PROFITS						
Units			3,650			
Unit Selling Price			600			
Net Sales			2,190,000			
Production Costs w/o Depreciation			972,900			
Depreciation (Normal Rates) 6.67%			122,100			
Shipping and Warehousing			--			
Cost of Sales			1,095,000			
Gross Profit			1,387,000			
Selling, Advertising, Administrative 6% Sales			148,900			
Pretax Profit			1,238,100			
Federal Taxes (52 %)			643,810			
NET PROFIT			594,290			
% Total Investment			26.7			
PAYOUT TIME — ADD BACK						
Tax Savings—Accelerated Depreciation						
Depreciation on books			122,061			
Profit — Cash Basis			716,339			
% Total Investment			32.2			
PAYOUT TIME Years			3.1			

Prepared by

Approved by

OLIN D 2-17-6

Regional Accounting Department

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FORM 6511 555

OLIN MATHIESON CHEMICAL CORPORATION

501

ECONOMIC EVALUATION—CLASS PROJECTS

Table IV

See Standard Procedure No. 7 and reverse side of Original of this form for detailed instructions. Date _____

Title	Amount	Appropriation Number
Ammonium Perchlorate - 10 T/Day		
Operating Division or Administrative Department	Originated by	
From Purchased Chlorate		
Plant Location / Department Name & Number	Building Name & Number	

☐ Expansion of Existing Equipment (Complete Columns A, B, and C) ☐ Equipment to Produce New Products (Complete Column B only)

PARTICULARS	A PRESENT	A % SALES	B PROJECTED	B % SALES	C DIFFERENCE	C % SALES
INVESTMENT						
Gross Plant			2,000,000			
Inventories			[illegible]			
Receivables			306,000			
Sub Total						
After Tax Expense			--			
TOTAL INVESTMENT			[illegible]			
ANNUAL SALES AND PROFITS						
Units Ton			3,000			
Unit Selling Price			660			
Net Sales			[illegible]			
Production Costs w/o Depreciation			[illegible]			
Depreciation (Normal Rates)			[illegible]			
Shipping and Warehousing			--			
Cost of Sales			1,533,000			
Gross Profit			949,000			
Selling, Advertising, Administrative 6% Sales			[illegible]			
Pretax Profit			[illegible]			
Federal Taxes (52 %)			416,042			
NET PROFIT			384,030			
% Total Investment			16.0			
PAYOUT TIME — ADD BACK						

☐ Expansion of Existing Equipment (Complete Columns A, B, and C) | ☐ Equipment to Produce New Products (Complete Column B only)

PARTICULARS	A PRESENT	% SALES	B PROJECTED	% SALES	C DIFFERENCE	% SALES
INVESTMENT						
Gross Plant			2,[illegible]			
Inventories			[illegible]			
Receivables			3[illegible]			
Sub Total						
After Tax Expense			--			
TOTAL INVESTMENT			[illegible]			
ANNUAL SALES AND PROFITS						
Units			3,[illegible]			
Unit Selling Price			6[illegible]			
Net Sales			[illegible]			
Production Costs w/o Depreciation			[illegible]			
Depreciation (Normal Rates)			[illegible]			
Shipping and Warehousing			--			
Cost of Sales			1,533,000			
Gross Profit			949,000			
Selling, Advertising, Administrative			[illegible]			
Pretax Profit			[illegible]			
Federal Taxes (52 %)			[illegible]			
NET PROFIT			3[illegible]			
% Total Investment			16.0			
PAYOUT TIME — ADD BACK						
Tax Savings—Accelerated Depreciation			--			
Depreciation on books			133,[illegible]			
Profit — Cash Basis			517,433			
% Total Investment			21.6			
PAYOUT TIME Years			4.6			

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FORM 6511 858

OLIN MATHIESON CHEMICAL CORPORATION

[illegible]

[fol. 952] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 15

Industrial Chemicals Division
Division Objectives

[Report dated April 4, 1958]

[Extracts]

J. Birkhahn, Csr, 10/4/61.

[fol. 953] Olin Mathieson Chemical Corporation

Industrial Chemicals Division
Mathieson Building Baltimore 3, Maryland

Objectives

Enclosed herein is the present statement of Industrial Chemicals Division (INDCHEM) objectives. It is the result of discussion among INDCHEM management and the independently expressed opinions of twenty supervisory personnel.

We believe strongly in the future of the U. S. economy and that the opportunities for chemical industry growth over the long run are almost unlimited. All phases of human existence involve chemicals and even those items not commonly thought of in terms of chemical markets, such as furniture, hardware and construction materials, represent ultimate outlets for existing and new chemicals. We wish to share in the expansion of the chemical frontiers.

This statement does not include detailed financial data although it is predicated on the basic premise of all business —to produce maximum return on investment and sales over protracted periods of time. But such is not attained by the mere financial attractiveness of individual projects. Rather, it is attained by an integrated program which utilizes to the maximum a constantly growing storehouse of raw materials, technical, market and management know-how.

To be an effective day to day guide, this statement must be reviewed regularly and suitable changes made in the actions prescribed to attain the principal objectives. It must, of course, be altered to meet Corporate objectives and financial capabilities. An indication of general approval from Corporate Management will permit us to develop detailed costs and timetables for carrying forward under these objectives.

J. O. Logan, Vice President & General Manager.

April 4, 1958.

[fol. 954] Summary of Objectives

1. Expand Production and Sales in the principal phases of INDCHEM'S existing business (See Tab. 1) and maintain a pre-eminent position in the following industries:
   a. Chlor-Alkali—Chlorine, Caustic Soda, Soda Ash, Sodium Bicarbonate.
   b. Nitrogen—Ammonia, Nitric Acid, Sodium Nitrate, Hydrazine.
   c. Sulfur—Sulfur, Sulfuric Acid.

2. Develop further the production and sale of co-product or by-products stemming from the above basic chemical areas, including:
   a. Carbon Dioxide—an established profit-maker based on our ammonia soda process which needs geographical expansion.
   b. Hypochlorites—broaden base of HTH products and add other hypochlorites and derived formulations.
   c. Nitrogen Derivatives—exploitation of hydrazine compounds in the resin and fuel additive fields, production of additional nitrates (for example, ammonium solutions).
   d. Sulfur Compounds—including SO_2, SO_3 and alum.

3. Develop the technology supporting the above product groups through Research and Process Development, specifically in the areas of:
   a. Electrochemistry—essential to the efficient production of Chlorine, Caustic and probably Soda Ash. Useful in other processes for new and related products.
   b. Product Application—greater knowledge of the uses of our principal products and better facilities to support introduction of new products.
   c. Process Improvement—aimed at higher efficiencies, lower capital and operating costs.

4. Creation of products new to OMCC but definitely related to the basic product groups, the technology or markets in which INDCHEM is now active:

   a. Electrochemical Process Products—such as, but not limited to, Chlorates and Perchlorates, Hydrosulfite, Sulfide, Caustic Potash.

   b. Products Related to Other Processes—Calcium Carbonate and Calcium Silicate Pigments, Sulfur Dioxide and Trioxide, Urea, possibly Cement.

   c. Products Serving Present Markets—Various "Bleaches" such as Lithium Hypochlorite, Resins and Fillers for textiles and paper, automotive hydraulic fluids and synthetic lubricants.

[fol. 955] 5. Strengthen Less Attractive Segments of the Division—or failing to find solution, arrange for disposition on most attractive basis:

   a. Automotive Products—add products to spread costs; continue purchase of glycol until OMCC production expanded.

   b. Insecticides—curtail research expenditure, dispose of certain facilities, cut overhead and remain producer of basic items like DDT.

6. Attract Customers to our Plant Locations—Increase the proportion of our production sold on a semi-captive, pipeline basis. Build up industry nuclei for future INDCHEM sales.

7. Consider the Production of Chemicals Using Our Products and Sold to INDCHEM Markets:

   Many chemicals consume the basic products we manufacture, for example, the Organic chemical industry is highly dependent upon chlorine. Likewise, many products outside the scope of INDCHEM'S present activities go to markets in which we are active. We propose, therefore, to consider all possible opportunities for producing established chemicals going to our established markets which would represent captive consumption of our basic materials.

8. Improve INDCHEM Raw Material Position—to be basically sound we need:

   a. Controlled supply of fuel—we have no owned fuel sources. We need gas at Lake Charles and at McIntosh for fuel and/or chemical up-grading.
   b. Power Sources—continued development in electrochemistry requires constant effort to find cheaper DC at *point of use.*
   c. Salt and Limestone—new sources or longer range guaranteed supply at Niagara Falls, Lake Charles and new locations.

9. Broadened Geographical Approach to Production and Distribution:

   a. New plant locations serving the industrial North, the West Coast and the growing Mountain area.
   b. Emphasis on water side locations and water transportation. No major plants except on navigable water.
   c. Distribution terminals wherever market can be reached from existing plants (via bulk water movement) until local production established.
   d. Stronger transportation effort on cutting freight equalization and freight absorption, reducing customer's delivered cost and improved penetration of distant markets.

[fol. 956] 10. Outside Purchases—INDCHEM will continue to use outside purchased materials to:

   a. Reach markets not available from present plants.
   b. Cover fluctuations in demand, thereby permitting more even operation of Division plants.
   c. Improve reciprocal balance in OMCC favor.

11. Foster Research to a Greater Extent:

The present budget, representing approximately 1.0% of sales, is too small. It should be expanded to about

3.0% to permit a vigorous program along the aforementioned objectives. Principal activity should be short range, with limited "basic" or "free rein" research in general areas of INDCHEM activity. Needs include:

a. Better facilities, particularly for Application Research.
b. Unification at one location rather than several scattered groups.
c. Continued further correlation of Plant Development and Research work with most pilot plant work done at location of final installation.

12. Better Organization and Utilization of Personnel:

a. Within the Corporation—work toward resolving the overlapping and sometimes confusing to the customer present situation where much production is not in selling Division or where two or more Divisions are selling same products to similar markets.
b. Within the Division:

1. Develop a new organization chart and clarify responsibilities.
2. Organize in units having responsibility (properly coordinated) and capable of being separated or transferred without loss of efficiency.
3. Provide better recruiting, training and evaluation techniques.
4. Plan for and develop future Managerial talent.
5. Improve safety record in plants.
6. Have program for personnel approaching retirement.
7. Effective award and reward systems.

[fol. 957] 8. Improved relations with Staff and other Division personnel.

9. Sharpen our work on cost control, quality control and materials handling.

13. Effective Community Relations—to minimize adverse publicity and labor relations, carry out the following:

a. Active participation in community affairs by personnel.

b. Publicity of safety and anti-pollution programs.

c. Division support of worthy local causes—particularly research or educational activities.

d. Publicity on part played by INDCHEM products in the economy and the effects on human welfare.

[fol. 958] Section 3

Objective: Develop the Technology Supporting Product Groups through Research and Process Development.

Of the three major phases of our business, as discussed in Section 1, there is probably less technological development currently taking place in ammonia and sulfuric acid than in the alkali-chlorine area. Since the latter is the largest of the three segments of our business, it is fitting that our principal technological developments should be related thereto.

Electrochemistry—The electrolytic cell for the dissociation of salt brine is the essence of our alkali-chlorine business. The continued development of our technology is essential to the efficient production of chlorine and caustic soda. In order to accommodate the indicated unbalanced position of these commodities and to provide sodium oxide for carbonation to soda ash, the electrolytic cell is also the basis of future soda ash production. This is particularly true when it is apparent that sodium oxide production as caustic soda from cells is almost as cheap today as is the production of sodium oxide in the form of soda ash from alkali plants built years ago. It is, therefore, believed that future soda ash production cannot be justified in the form of ammonia soda plants (except in possibly unusual conditions) and that future soda ash production will come from caustic produced in the electrolytic cell.

Our Research and Development program, in conjunction with our Plant Development people, is aggressively pursu-

ing the development of more efficient mercury cells. This program is currently active with a large commercial test unit in operation at McIntosh and a small experimental unit at Niagara Falls. We are also running a semi-pilot test unit at Lake Charles on the production of soda ash by the carbonation of caustic soda. We propose to pursue this work vigorously so that future installations will reflect the latest knowledge as will any expansions or modifications of our existing plants. This work is directly related also to new products which will be discussed later.

[fol. 959] Section 4

Objective: Creation of Products New to OMCC but Definitely Related to the Basic Product Groups, the Technology or Markets in Which INDCHEM Is Now Active.

In the development of products new to OMCC, we would use three basic criteria, namely, whether or not the new product is related to existing products (for example, sulfur trioxide from sulfuric acid plants), is produced by an extension of existing technology (the use of sodium amalgam to produce sodium hydrosulfite in place of caustic soda), or is destined for a market in which we are already active. The more of these criteria to which a new product can measure up, the better its chance of success, assuming, of course, that the economic aspects of its production are attractive.

Electrochemical Process Products—Products INDCHEM should seriously investigate, since they meet one or more of the aforementioned criteria, include the following:

a. Chlorates and Perchlorates—We have an unparalleled opportunity to move sodium chlorate into the paper industry as the result of our work on the installation of chlorine dioxide generators. We have a captive consumption for sodium chlorate. The development of solid fuels for missiles is creating demand for perchlorates. The production of perchlorates from chlorate enhances the economic attractiveness of chlorate production. Possible production is being reviewed with Dr. Hanford currently and if we do not take action in the near future we will lose the opportunity.

b. Hydrosulfite and Sulfide—These sulfur products can be prepared from sodium amalgam produced in our mercury cells. Substantial experimental work is behind us and decision only awaits capital and satisfactory economic conditions.

c. Caustic Potash—We can produce this material in our standard mercury cell at any time the market conditions and our captive consumption (Blockson) justify. At the present time, the market is over-produced forcing some adjustment of price levels. After stabilization, production will again be reviewed.

There are other products similar to the aforementioned which fall into this category and on which constant review will be maintained.

Products Related to Other Processes—In the non-electrolytic field, our ammonia soda process produces calcium chloride which can be reacted to form calcium carbonate and calcium silicate, pigments which are growing in the paper, rubber and paint trades. We have a research program initiated on these products and would expect to eventually put the process into operation at Saltville.

Sulfur dioxide and trioxide are produced in all the acid plants enroute to sulfuric acid. We have researched a superior stabilizer for sulfur trioxide. At such time as economics and practices in the consuming industries justify, we can engage in the production of these products.

[fol. 960] Urea is widely used industrially and as a plant food. Our ammonia plant at Lake Charles, with its by-product CO_2 production, would represent a sound raw material position for the production of urea.

A couple of years ago, we presented an attractive economic picture on the production of cement at Lake Charles utilizing solids from our oyster shell and ammonia soda processes. This project was turned down at that time but there are certain periods of construction activity when the demand for cement is such that it would justify serious consideration of production.

Products Serving Present Markets—We are extensively engaged in marketing "bleaches", including sodium chlorite, the various forms of HTH and chlorine. We should extend our product line in these fields and include such items as lithium hypochlorite and possibly perborate.

Of all the materials we have sold to the textile and paper industries, none has gone into the finishing of the final product. Our sales have been made to the pulping and textile fiber processing business rather than to the paper and cloth operations. In the latter areas, the market for chemicals is possibly greater than in the preparation of the raw materials. We need to invade these markets and our textile resin is the first step in this direction. This effort should be expanded by a multiplicity of such resin products adapted to both textile and paper requirements.

Our Automotive product line needs additional hydraulic fluids designed to meet heavy duty service conditions developing in the automotive and aircraft industries. Also, more and more of the total lubricants used are coming from chemical sources. Our oil additive program and our hydraulic fluid program must be pursued vigorously.

[fol. 961] Section 9

Objective: Broadened Geographical Approach to Production and Distribution.

New Plant Locations—INDCHEM has been essentially a Southern Company with the majority of its production and sales being made to Southern consumers. We have never participated extensively in the vast industrial markets surrounding the Great Lakes and to only a limited extent in the North Atlantic industrial areas. Only specialty products have been moved to the growing market on the West Coast and in the Mountain areas. As circumstances develop, we propose to install productive capacity for one or more of our products in the Middle-West and on the West Coast or at any other location where demand justifies, even though such a location would represent new territory for us.

[fol. 962] Section 10

Objective: Outside Purchases.

Exclusive of antifreeze, outside purchases for resale by INDCHEM totaled $2.26 million during 1957. On this we had a net profit of 3% of sales. We will continue to use outside purchases for the following purposes:

To Reach Markets—Certain areas are unavailable from our existing plants but contain markets we wish to serve with other products. To round out our "package", we will purchase material, such as soda ash from Wyandotte, to enhance our overall position in the marketing area.

To Cover Fluctuations in Demand—Purchase arrangements consummated in recent years have permitted an adjustment of the rate of purchase in conformity with business conditions. At the same time, we have not been forced to adjust our own production to the same degree. For example, Tab. 12 shows that during 1956 and 1957 INDCHEM'S liquid chlorine production rate was maintained very substantially over 100% of rated capacity whereas the industry rate fluctuated from substantially below 100% to slightly over 100%. The continued operation of our plants at relatively high levels with the consequent marginal profits obtained thereby is ample justification of the outside purchase for resale approach.

Improve Reciprocal Balance—There are some purchasers of our materials who would expand their purchases if a more favorable reciprocal trade balance is maintained. By picking the firm from which purchases are made, the balance can be improved in OMCC's favor.

[fol. 963] Section 11

Objective: Foster Research to a Greater Extent.

The 1958 Research budget for INDCHEM amounts to $1.26 million or approximately 1% of sales. This is not sufficient to properly develop the processes and products required by the objectives of this Division. Our Research budget should be expanded to approximately 3% of sales.

It is recognized that the principal Divisional research

activity should be short range in nature and related directly to the current Division objectives. However, some basic research in the general areas of INDCHEM activity is necessary to maintain fundamental positions.

To produce the results we desire, we have the following objectives in our Research activity:

Better Facilities—We need improved physical equipment and housing and the addition of substantial amounts of application research facilities. We are woefully lacking the equipment necessary to properly evaluate the application of our products to the principal marketing areas.

Unification—At the present time, we have INDCHEM research activity being carried on at New Haven, Port Jefferson, Rochester and Niagara Falls in addition to specialized activity in one or more of the plants (mercury cell operation at McIntosh). For better coordination and supervision and, hence, improved efficiency, we need our facilities unified and are working on a program of accomplishing this at Niagara Falls. We expect to transfer the Rochester research activity to Niagara later this year, and upon disposition of the Port Jefferson facility, we will attempt to transfer such activity to Niagara.

Correlation of Plant Development and Research—Some of our effort, particularly that devoted to the improvement of existing processes, is best carried out in our plants. Furthermore, pilot plant work should preferably be done by the plant at the ultimate location of the commercial facility. Therefore, our Research and Development work calls for constant coordination between plant technical personnel and the Research staff. This coordination has improved materially in recent years and we hope to further develop the relationship.

[fol. 964] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 16

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.701 Engineering Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Rep. By	
B. H. Wojcik					Charge No.: 530-743-100-2004
B. H. Nicolaisen					
W. C. Gardiner	X	X			Report Dated: April 29, 1958
R. C. Harshman		X			
R. A. Turner			X	X	Report Typed: May 9, 1958 :alh
A. J. Holmes					
G. D. Byrkit					
J. B. Haglind					
H. A. Bruson					
s-B. H. Wojcik					
s-R. M. Thomas					
s-T. H. Dexter					
s-C. M. White					
s-G. K. Weisse					
s-E. E. Harris					
s-A. W. Sawyer					
s-C. W. MacMullen					

Manufacture of Sodium Chlorate

Approved: R. C. Harshman. Signed: R. A. Turner.

Date: 2/4/59 Date: 12/5/58.

[fol. 965] Summary

The design of a plant to produce sodium chlorate chemically from chlorine and caustic is presented. This design was revised to obtain a plant which would operate with chlorine and solid sodium carbonate.

The economics of the two chemical processes are estimated and compared with the economics of the electrochemical processes from H-35.504.

The economic attractiveness of the chemical production of sodium chlorate from chlorine and caustic or sodium carbonate depends on the market situation of the raw materials.

If the chlorine which is to be used for chemical chlorate manufacture can be sold at market price, the electrochemical processes are more attractive. If excess chlorine and caustic or soda ash capacity exists, chemical production is approximately competitive with electrochemical production. Chemical production requires a lower investment and gives a shorter pay-out but has a higher production cost and hence gives less profit after the plant is paid-out. If excess decomposition is obtained by increasing the operating current on the existing chlor-alkali plant at Saltville, and the caustic can be sold at market price, the chlorine—soda ash process is more attractive than either the chlorine—caustic or the electrochemical processes.

The Financial Criteria tabulated below compared the chemical sodium chlorate processes and raw material market considerations with the electrochemical processes presented by A. J. Holmes in Electrochemical Survey Report H-35.504.

[fol. 966]

Chemical Processes	Fixed Capital	Annual Gross Profit (Loss)	Production Cost, $/Ton	Return on Investment, %	Pay-out Time, Yrs.
Chlorine and Caustic; Saltville					
Raw Materials at Market Less Sales	$1,701,000	$(1,954,000)	287.52		
Raw Materials at Present Production Cost ($20/Ton)	1,701,000	459,000	122.25	10	5.1
Raw Materials at Incremental Prod. Cost (43,000 amps)	3,826,000	(12,000)	154.55		
Chlorine and Caustic; McIntosh					
Raw Materials at Market Less Sales	1,701,000	(2,026,000)	292.48		
Raw Materials at Present Production Cost ($20/Ton)	1,701,000	390,000	127.02	8.5	5.6
Raw Materials at Incremental Prod. Cost (43,000 amps)	3,826,000	(84,000)	159.45		
Chlorine and Sodium Carbonate; Saltville					
Raw Materials at Market Less Sales	1,340,000	(1,255,000)	239.64		
Cl_2 at Market Less Sales; Na_2CO_3 at Prod. Cost ($17/Ton)	1,340,000	(704,000)	201.91		
Raw Materials at Present Production Cost	1,340,000	454,000	122.59	11.8	4.4
Cl_2 at Incremental Production Cost (43,000 amps) Na_2CO_3 at Present Production Cost ($17/Ton)	3,465,000	1,224,000	68.86	13.9	4.2
Cl_2 at Incremental Production Cost (43,000 amps) Na_2CO_3 at Market Less Sales	3,465,000	690,000	106.38	8	6.2
Electrochemical Processes					
Saltville	4,600,000	534,000	117.10	5	8.2
McIntosh	4,600,000	434,000	123.91	4.1	9.0
Lake Charles	4,600,000	454,000	122.54	4.3	8.8
Saltville (Pechiney Process)	4,600,000	604,000	112.16	5.7	7.7

[fol. 967] Conclusions:

Comparison of the financial criteria for chemical and electrochemical chlorate in Tables IV and V shows that the chemical processes have lower investments, lower production cost, higher returns and shorter pay-outs period than the electrochemical process.

The chemical sodium chlorate processes which appear from the financial criteria comparison to be more economically attractive than the electrochemical processes are predicated primarily on the market situation of the raw materials used. If all of the chlorine and caustic produced presently, or by increasing capacity, can be sold at market price the electrochemical chlorate processes will be more attractive.

Recommendations:

It is recommended that a survey of the market for chlorine and caustic be undertaken before a decision is made to produce sodium chlorate chemically.

It is also recommended that the economics of operating the chloralkali plants at increased current density be more firmly established.

[fol. 968] In United States District Court

Plaintiffs' Exhibit 17

Olin Mathieson Chemical Corporation

Date: June 27, 1958.

To: B. H. Wojcik at Baltimore
From: W. C. Gardiner at Niagara Falls

Copy to: E. Block
J. O. Logan

Subject: Sodium Chlorate

I am pursuing the several methods for obtaining additional information on the economics of chlorate manufacture as suggested Friday morning. Another approach occurs to me and that is to have Pechiney supply engineering information so that an engineering firm could estimate U.S. costs.

For example, Blaw-Knox's Paris representative could obtain building and equipment specifications and get quotations either in France for export or have U.S. equipment manufacturers quote on Pechiney drawings. In this way it could be kept confidential from OMCC if Pechiney so desires but we would get the cost of a U.S. plant. This would cost us money.

I found a note in my files reminding me that Howard Brown of Hooker told me that Pechiney was the second largest chlorate producer in the world.

The cells proposed by Pechiney for us were 18,000 amperes instead of 10,000 amperes as I stated yesterday.

Please let me know whether I should make any move on the above proposed method of getting more information.

W. C. Gardiner.

Received July 1, 1958, B. H. Wojcik.

[fol. 969] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 18

July 2, 1958.

Dr. W. C. Gardiner, Niagara Falls
Dr. B. H. Wojcik, Baltimore

Mr. J. O. Logan
Mr. E. Block
Mr. B. H. Nicoalisen

Sodium Chlorate

Mr. E. Block has suggested that we first try to obtain European information on sodium chlorate manufacture through our International Division. I have sent a note to Bob Fodor asking him to get whatever data are available through our European contacts for evaluation.

In view of the suggestion made by Block I recommend that we hold off for the time being approaching Pechiney through Blaw-Knox or anyone else except representatives of our International Division.

B. H. Wojcik.

BHW:feg.

[fol. 970] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 19

July 2, 1958.

Mr. R. S. Fodor, New Haven
Dr. B. H. Wojcik, Baltimore

Mr. E. Block
Mr. J. O. Logan
Mr. W. C. Gardiner

Sodium Chlorate

At a meeting held in Niagara Falls last week, Mr. Block suggested that I write you concerning European information on sodium chlorate.

As you know, from time to time, we have considered the possibility of producing sodium chlorate. Numerous cost estimates prepared by research engineers, based principally on literature data, leave much to be desired regarding profits. Recently several U. S. concerns have seen fit to either expand their capacity or install new plants for the production of chlorate. This naturally raises the question of just how accurate are our cost estimates.

To help us re-appraise production costs without causing any anxiety amongst our friends now producing sodium chlorate, we are seeking your assistance in acquiring European information on the subject. We are not ready at this time to make a commitment with any concern on a process.

At one time we received information from Pechiney. This was used in preparing a cost estimate. It turns out that, if the data examined is correct, the profits from such an operation fall short of our expectations, even below some of our other estimates. Perhaps, we should again approach Pechiney if for no other reason than to compare the in-hand data with something new. Electrochimie also produces sodium chlorate in France. I believe they will be kind enough to furnish cost estimating data.

Any help which the International Division can give us on this problem will indeed be appreciated.

B. H. Wojcik.

BHW:feg.

[fol. 971] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 20

Extract From the Minutes of Division Management Meeting Held on July 28, 1958

Present: J. O. Logan, J. F. Newell, B. H. Wojcik, O. J. Theobald, Jr., W. A. King, C. C. Hightower, C. L. Williamson.

45.2—Sodium Chlorate

Dr. Wojcik reported that Mr. Block has instructed his group to take another look at subject product. R&D is obtaining additional foreign information to check out our economics.

[fol. 972] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 22

Olin Mathieson Chemical Corporation

August 19, 1958.

B. M. Wojcik, Baltimore
R. C. Harshman, Niagara Falls

E. Block
J. O. Logan
B. H. Nicholaisen
W. C. Gardiner

Cost Estimate on Electrochemical Production of Sodium Chlorate

At Mr. Block's request, I have prepared independent estimates of the cost of production of sodium chlorate by the electrochemical route. These estimates indicate a reasonably attractive profit for this operation if a location can be found which has cheap power available, which permits minimum shipping charges on the product and which has reduced overhead by virtue of sharing the location with other producing facilities. We are currently investigating the possibility of locating such a plant at Qual, Ohio, at the

site of our aluminum operation. We are also checking on the effect on additional power load on rates at Saltville and McIntosh. When all of this data is available, we will issue a Survey Report. I'm sending this to get the data into your hands in the meantime.

Previous estimates made to evaluate the possibility of our undertaking electrochemical production of sodium chlorate at Saltville or McIntosh have indicated a low potential profit. In contrast to this, we know that Oldbury (now Hooker) built a plant for the electrochemical production of sodium chlorate at Columbus, Miss. This plant started operation about 1954 and is currently undergoing its third expansion, which will increase its capacity to more than twice the initial capacity. It is obvious that Hooker would not undertake repeated expansions of this plant if it did not appear to be a reasonably profitable operation. In an attempt to reconcile these two observations, W. C. Gardiner and R. E. Maizell have gathered considerable additional data and I have prepared independent cost estimates on Hooker's production of sodium chlorate at Columbus, Miss. The attached cost estimate and financial criteria present the results of these calculations. The calculations are based on the anticipated operation at Columbus, Miss., when the current expansion is completed. This will give an estimated production capacity of 75 tons of chlorate per day.

Examination of this data and comparison with previous estimates points out that the three most important cost factors are:

1. Power rate
2. Freight equalization cost
3. Overhead cost

[fol. 973] It is significant to note that the Hooker plant at Columbus is in a relatively favorable position with respect to all three of these factors. The plant is close to a major segment of the market (the southern pulp and paper mills) and the only other competitor in the area is nearby. It is probable that the freight rates from Columbus, Miss. to major consuming points are identical to those from American Potash's plant at Aberdeen, Miss. (due on stream sometime in 1958) and hence Hooker is able to ship its product with negligible freight equalization charges. The plant

is located in the TVA power area and hence has the advantage of low power rates. With the expansion presently underway, the Hooker plant is a relatively large plant and it also shares this location with at least one other producing facility (phosphorus pentasulfide). These factors lower the overhead cost for this operation. Even under favorable conditions the return on the investment is sufficiently low to indicate that all of these major cost factors must be precisely evaluated in considering the attractiveness of a specific operation for the electrochemical production of sodium chlorate.

The attached estimate represents an evaluation of Hooker's overall operation as it is expected to be when the expansion currently underway is completed. However, we should bear in mind that this overall operation was derived from an initial installation planned in 1952-53 and constructed in 1953-54 followed by subsequent expansions. Since this time costs have risen more rapidly than has the price of sodium chlorate and hence it is probable that the original installation was based on an anticipated profit slightly larger than what would be realized on the same installation today. Successive expansions could really be justified, however, since the capital investment, operating labor, and overhead charges would be lower on incremental capacity than on the initial capacity. At least a portion of the output of Hooker's Columbus, Miss. plant will be used capitively in the production of perchlorates for military use. MEF, Inc. (a joint venture of Hooker and Foote Mineral) is building a plant for the production of perchlorates adjacent to Hooker's chlorate plant.

Perhaps the best way to summarize these evaluations is with respect to our possible position in chlorate manufacture. With respect to one of the major markets, pulp and paper bleaching, we have a favorable marketing position, particularly in the southeast. Although electrochemical production of sodium chlorate does not present quite as favorable a return on investment as does electrolytic production of caustic and chlorine in our present operations, it does offer an attractive potential. Sodium chlorate represents a logical expansion of the product line of the Industrial Chemicals Division. If the production of sodium chlorate could be carried out at a location where cheap power was

available, where shipping charges on the product to the major consumers would be small, and where other Olin Mathieson operations existed or could be set up, it should represent an attractive venture.

[fol. 974] This reasoning leads to the suggestion of the location at Omal, Ohio. Cheap power is available here, overhead can be reduced by sharing some facilities and services with Ormet, salt should be available at a reasonable cost, and barge shipment of the product down river would reduce freight costs.

Since sodium chlorate and electrolytic chlor-alkali plants use the same prime raw materials (salt and electric power), it might appear contradictory to any that Saltville and McIntosh are logical locations for chlor-alkali plants but probably are not for chlorate plants. It is instructive, therefore, to look at the unit consumptions. For one ton of chlorate, we consume 0.566 tons of salt and 6,000 KWH of electrical power. To produce the same dollar volume of sales from a chlor-alkali plant, the corresponding unit consumptions are 2.076 tons of salt and 4,422 KWH of power. The ideal location for both types of plant is obviously one at which cheapest salt and cheapest power are both available. If, however, a compromise is necessary, it should be made in the direction of cheaper salt for the chlor-alkali plant and cheaper power for the chlorate plant.

R. C. Harshman.

[fol. 975] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 23

Received October 7, 1958, B. H. Wojcik.

October 3, 1958.

Dr. W. C. Gardiner, Niagara Falls.
R. S. Fodor, New Haven.

D. W. Ryker
H. E. Boge
B. H. Wojcik

Subject: Vicker-Krebs, Ltd. (Canada) Sodium Chlorate

On October 3, 1958, Mr. Robert B. Spence, Sales Manager of Vickers-Krebs Ltd., P.O. Box 550 Place d'Armes Station, Montreal, Canada, called on me to discuss sodium chlorate. Vickers-Krebs is a joint company between Krebs of France and Vickers of Canada. The company was formed to take advantage of Krebs' know-how and Vickers' experience in manufacturing. Herb Boge had contacted Krebs of Berlin re a sodium chlorate proposal and this request had been relayed to Krebs of France, thence to Vickers-Krebs. Vickers-Krebs is handling the sale and construction of plants in North America.

Unfortunately, Spence was not too familiar with our request for a proposal and so we talked in general terms and agreed on further action. This was that we would send him additional information for his estimate and then he would give us at least a preliminary proposal.

Spence would like us to define more exactly the scope of what we would expect Vickers-Krebs to include. The following questions were raised:

1) Will salt handling equipment be involved or will OMCC bring saturated brine to the battery limits?
2) What is the complete salt analysis?
3) Will OMCC bring water and steam to the battery limits or must these be provided. If OMCC will furnish, Spence would like to know maximum and minimum water temperatures, quantity available, something about the quality, if known, and the steam pressure that will be available.

4) Should Vickers include electric rectification equipment? (The presumption here is that the buyer may prefer to install his own electrical systems to conform to his own requirements. Spence made the statement that it was almost imperative from an economic viewpoint that a chlorate plant be located next to a chlorine facility.)

[fol. 976] 5) Should product storage, packaging and handling facilities be included and if so, how much storage and what kind of shipping containers? (Normally, Spence feels that a battery-limits plant stops at the point where granular product is discharged from the drier.)

Spence will assume a load bearing soil of 3,000 lbs. per sq. ft. I also told him we were interested in 50 tons per day of product.

Vickers-Krebs would provide a turnkey package including start-up. There is no royalty or licensing fee involved.

Spence did offer some information which I offer for your consideration. Not too long ago they bid on a plant for American Potash which was to be a grass-roots plant. It was to have a capacity of 15,000 tons/year and their proposal was $6,000,000. Vickers did not get the job. Spence guessed that a battery-limits plant for 50 tons per day, not including rectification but including salt handling facilities, would cost about $4,000,000.

Spence mentioned that 140 cells were required to produce 10,000 tons per year. These are 15,000 amp. cells at a voltage of 3.2. The anode current density is 0.286 amps. per square inch. They guarantee an 80% current efficiency and usually obtain 83-85%. They use external carbon coolers for the electrolyte. 15 KW as heat must be removed from each cell. Electrolyte leaves the cell at 47°C and is cooled to 43°C.

Graphite consumption is estimated at 22 lbs. per ton but they have realized consumptions as low as 17 lbs. per ton.

Spence claims maintenance is not a problem and indicates that the external cooling feature and the prolific use of PVC in cell construction has resolved most of the old time maintenance problems.

Vickers use what Spence calls a continuous batch system with their cells. Three large feed tanks are used to feed

the brine batchwise t e cells. While one tank is being used, one is being filled and the other is being discharged to the evaporator. At the beginning of a cycle the feed tank is made up to a concentration of 230 gr. of NaCl/liter. This brine is fed to the cells and returned into the same feed tank for about 100 hours. At this point the NaCl concentration drops off to about 120 g./l. At the same time the chlorate concentration has increased but no numbers were given. After the 100 hour cycle is completed, the cells are fed from a fresh feed tank.

[fol. 977] The tank that contains the brine enriched with chlorate is fed to an evaporator and thence to a series of crystallizers and centrifuges, and finally to a drier. The spent brine is returned to the feed tank where it is enriched with brine prior to being returned to the cell cycle.

Spence indicated that spent brine from chlorine cells after proper degasification could be used to feed the chlorate cells.

I would like to suggest that since Spence is located in Montreal, you write him directly, giving him as much information on the questions he raised as you feel you can. You may even want to set some "ground rules" of your own for a proposal. (I want a copy of any correspondence you may have so as to keep informed.)

Spence has promised to furnish a fairly accurate estimate of capital costs and will provide the necessary consumption ratios for you to determine the production cost. He will also provide a schematic flow-sheet.

I hope the above is of some help to you and as soon as we hear from Ugine on this same matter, we will pass it along. We requested Boge to expedite this matter as much as he can.

Best regards.

Original signed by R. S. Fodor

RSF:F
c

[fol. 978] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 24

Olin Mathieson Chemical Corporation

November 12, 1958

J. E. Baker, Niagara Falls
W. C. Gardiner, Niagara Falls
New Cell Plant—Vickers-Krebs

C. C. Hightower
B. H. Wojcik
B. H. Nicolaisen
R. S. Fodor

Mr. R. Spence and Dr. M. Zundel of Vickers-Krebs, Montreal, were in my office on November 11th with a turnkey quotation for a sodium chlorate plant. At the completion of our meeting on this subject they showed us pictures of the alkali-chlorine plant that they built for Shawinigan Chemicals. This plant for 50 tons of chlorine and conversion to 50 tons of dry hydrogen chloride has been on stream for six months with everyone happy (according to Spence). The BASF cells operate at 40,000 amperes and have 1 inch backpressure at the cells. Chlorine drying is in a cascade of four tanks each having a motor on the top which throws the sulfuric acid up to contact the gas. An Italian, sulfuric acid sealed, rotary compressor, good for 53 psig, but operating at 35 psig, is used and considered superior to a Nash pump. They used Worthington freon liquefiers which they are not happy about. They have diaphragm type liquid chlorine pumps.

They requested permission to quote on a chlorine plant for us. I gave them all of the pertinent data which I sent Monsanto on July, 1958, except that it was too late to get copies of Dwgs. 5889-A and 9034-C so I gave them the right hand half of Dwg. 7645-A supplemented with some dimensions supplied by phone from Dwg. 9034-C.

They will supply a turnkey price which should be comparable with Monsanto's.

Original Signed By W. C. Gardiner

Received November 14, 1958, B. H. Wojcik.

[fol. 979] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 25

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.507 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Report By	
B. H. Wojcik					Chg. No. 743-2010
B. H. Nicolaisen					
W. C. Gardiner	X	X			Report Dated: 12/11/58
A. J. Holmes					
H. A. Bruson			X	X	Report Typed: 1/8/59:CB
Library					
G. D. Brykit					
S-R. C. Harshman					
S-T. H. Dexter					
S-C. M. White					
S-B. H. Wojcik					
S-G. K. Weisse					
S-R. M. Thomas					
S-C. W. MacMullen					

Comparison of Vickers-Krebs and Pechiney Sodium Chlorate Plants

Signed: A. J. Holmes. Approved: W. C. Gardiner

Date: Jan. 13, 1959. Date: Jan. 13/59

[fol. 980] Table of Contents

	Page No.
I. Summary	3
II. Objective	4
III. Introduction	4
IV. Plant Description	4
A. Vickers-Krebs Plant	4
B. Pechiney Plant	7
V. Unit Consumption Comparison and Production Cost Estimate	8
VI. Conclusions	9
VII. Recommendations	10

Attachments
Table I, II, III, and IV
Figures 1 and 2

[fol. 981] I. Summary

A turnkey construction proposal for a 40 ton per day sodium chlorate plant has been received from Vickers-Krebs Ltd. of Canada. Cost of this plant is $3,197,000 on a prepared site. Production cost of $NaClO_3$ in this plant would be $91.61/Ton $NaClO_3$. Return on the above Investment would be 13.4% with a Pay-Out period of 5 years.

The Vickers-Krebs plant is compared with a plant proposed by Pechiney of France. No firm investment figure is available on this plant so comparison is limited to unit consumptions. Exclusive of costs involving investment, i.e. raw materials, utilities, labor, etc., the Pechiney costs are $1.50 per ton $NaClO_3$ higher than the same costs for the Vickers-Krebs plant.

[fol. 982] II. Objective

This survey was made to compare sodium chlorate plants proposed by Vickers-Krebs Ltd. of Canada and Pechiney of France.

III. Introduction

A chlorate plant description was received from Pechiney by S. J. Wommack on January 21, 1957. A turnkey proposal for a chlorate plant at Saltville, Va. was made to W. C. Gardiner on December 1, 1958 by Vickers-Krebs Ltd. This report will compare the two plants from an economic point of view.

IV. Plant Description

A. Vickers-Krebs Plant

A 40 ton per day sodium chlorate plant was described to W. C. Gardiner, R. C. Harshman and A. J. Holmes of Olin Mathieson by R. B. Spence and Dr. M. Zundel of Vickers-Krebs Ltd. of Canada. Krebs has constructed 17 sodium chlorate plants throughout the world since 1925 and is now building a plant in Finland utilizing a 30,000 ampere cell. A process flow diagram is given in Figure 1. A general description of the proposed plant is as follows:

Cells

100 Monopolar cells rated at 30,000 amperes in two banks using perforated steel cathodes and impregnated graphite anodes.

Brine Purification

Facilities for brine treatment, filtration and storage (100 hrs. cell operation).

Brine Post-Treatment

Facilities for removing hydrogen, sludge, and hypochlorite from brine containing sodium chlorate.

Sodium Chloride Recovery

Facilities for the evaporative concentration of sodium chlorate and the continuous cystallization and removal of sodium chloride crystals.

Sodium Chlorate Recovery

A vacuum crystallizer, crystal growing type, with a capacity of 45 tons a day of sodium chlorate crystal. Crystals can be produced in different sizes. The equipment is designed for crystals between 60 mesh and 1/16" at rated capacity. The sodium chlorate is recovered on a continuous centrifuge and is dried in an indirect gas fired rotary dryer.

[fol. 983] The plant is completely instrumented.

Buildings

Building of structural steel frame and corrugated asbestos board siding. All ground floors sloped to sewers for easy washing. Natural ventilation is used in the cell and evaporator sections. Forced ventilation is used in the packing area and in the rectifier room. Space heaters are used to provide heat throughout the plant. The cell building is one story 60′ x 160′ x 25′ high. At one end is an office, laboratory, and rectifier room. At the other end is the lockers and lavatory. The crystallizing building is three stories 70′ x 30′ x 65′ high. The drying and packaging building is two stories 70′ x 30′ x 50′ high. The pump and filter room for brine treatment is two stories 30′ x 30′ x 25′ high.

Power Distribution

Power for all purposes will be supplied in one location at 13.8 KV.

Rectifier

Water cooled mechanical rectifiers having onput of 30,000 amperes continuous; 5% overload continuous 375 volts maximum, and continuous automatic load regulation.

The utility requirements of the plant are as follows:

A.C. Power, 13.8 KV

Total Installed power 12,500 KW
Normal continuous load 10,750 KW

Cooling Water

River Water—Reusable

Consumption at 60°F.	2400 GPM
at 80°F.	3500 GPM

Brine

Brine with the following analysis:

NaCl	300 g/l
SO_4=	3.2-3.7 g/l
Ca++	0.7-1.5 g/l
Mg++	0.1 g/l

[fol. 984]

Average Consumption	18,000 gal/day
Instantaneous output	50 GPM

Oil

Bunker C

Summer	3.7 tons/day
Winter	5.4 tons/day

Raw material consumptions per ton of $NaClO_3$ produced for the plant are listed as follows:

Power		
	A.C. Power for electrolysis measured on 13.8 KV inlet	KWH 6100
	A.C. Power for other utilities	KWH 200
Steam		
	at 150 PSIG	
	for process	lbs. 2750
	for heating	lbs. 250
Brine		Gal. 460
HCl	22° Bé	lbs. 50
NaOH	50%	lbs. 4
Soda Ash		lbs. 10
Barium chloride		lbs. 32
Graphite (treated, dense quality)		lbs. 23
Fuel Consumption (Bunker C)		lbs. 185

The personnel requirements for the plant are as follows:

Operating Labor		Total Force
Cell Room	1 Operator/shift 7 day/week	4
Concentration, Crystallization, Drying	1 operator/shift 7 day/week	4
Handling, Bagging Moving of Drums	3 men, daytime only 5 day/week	3
[fol. 985]		
Brine Preparation	1 man, Daytime only 5 day/week	1
Supervision		
Plant Engineer *	½ Day	½
Chemist *	½ Day	½
Instrument Repair *	1-2 hrs. day	1/5
Foreman	1 per shift, 7 day/week	4
Maintainance		
Supervision *	1 Foreman, Half-day	½
Cell Rebuilding	2 men, daytime only	2
Routine Maintainance Graphite Preparation Electrician	5 day/week 1 man, daytime only 5 day/week + standby for emergency	1
Mechanic	1 man, daytime only 5 day/week	1
Storekeeper *	1 Man half-day occupation	½

* Personnel to be shared with other production facilities.

Vickers-Krebs estimates that this plant would cost $3,197,000 for a turnkey job. This proposal includes the design, engineering, supply, erection and startup supervision for a nominal 40 tons sodium chlorate per day on a level site at an existing plant.

B. Pechiney Plant

The Pechiney process in France starts with sea water to obtain sodium chloride solution which is not as pure as that used for caustic and chlorine plants. The concentration of the NaCl is 250 gms/liter, which is near the saturation concentration at −10°C. This solution is passed through two parallel banks of cells. Pechiney presently is using 3,000 ampere cells; however, they have tested an 18,000 ampere cell for over a year and found it quite satisfactory. The solution leaving the cells contains about 150 g/l NaCl. This is increased to 250 g/l by addition of solid salt. The solution is cooled

[fol. 986] to —10°C. and centrifuged at that temperature to remove the sodium chlorate crystals. The solution from the centrifuge, containing 250 g/l NaCl, and saturated with $NaClO_3$ is recirculated through the cell. A schematic flow diagram is shown in Figure 2.

The unit consumptions per ton of sodium chlorate produced are given as follows:

Salt	.64 Ton
Graphite	13.2 lb.
Cr_2O_7	.88 lb.
Steam (exclusive of building heating)	None
Bunker C Fuel Oil	185 lb.
Power (A.C.)	450 KWH
Electrolytic (A.C.)	6200 KWH
Labor	
Operating	3.58 MH
Supervision	1.0 MH
Repair	
Labor	.42 MH
Materials	$.60

V. Unit Consumption Comparison and Production Cost Estimate

A comparison of the unit consumptions of the Vickers-Krebs and Pechiney chlorate plants is as follows:

Units per short ton $NaClO_3$

	Vickers-Krebs	Pechiney
Salt, Ton	.574	.64
Graphite, lb.	23	13.2
HCl, 22°Bé, lb.	50	.88
Cr_2O_7, lb.	2.7	.88
Steam, lb.	3,000	None
Power (A.C. KWH)	200	450
Electrolytic (A.C. KWH)	6100	6200
Labor		
Operating, M.H.	1.78	3.58
Supervision, M.H.	.75	1.0

[fol. 987]

Repair		
Labor, M.H.	.64	.42
Materials	.80	.60

The unit costs for the above items used in making a production cost estimate for the Vickers-Krebs plant were derived from the following sources:

The investment is that sum proposed by Vickers-Krebs and does not include any expense incurred by OMCC in site preparation.

Brine, HCl, Fuel Oil, Steam, Power, Labor, Maintainance, Maintainance Overhead, Taxes and Indirect Overhead costs were given to W. C. Gardiner in a letter dated 2/12/57 from G. F. Comer. Labor rates in this estimate have been increased 5%.

Graphite costs were based on National Carbon prices for impregnated graphite.

Cr_2O_7, NaOH, Na_2CO_3 and $BaCl_2$ unit costs were taken from a current Oil, Paint and Drug Reporter. Maintainance materials was figured as ½ Maintainance labor costs.

Transportation charges were based on NaOH shipping charges of $5/T and 40 ton sodium chlorate tank cars. Freight equalization is based on equalization from Columbus, Miss. and delivery to paper mills in quantities and locations supplied by John J. Hayes in a Sodium Chlorate Market Research Report dated December 1956.

Freight rates were supplied by J. J. Kerr, December 5, 1958 as shown in Table IV.

Figure 3 is a Production Cost Estimate for making sodium chlorate at Saltville in the proposed Vickers-Krebs plant. Figure 4 is the Financial Criteria Sheet for the above mentioned plant. A production cost estimate was not made for the Pechiney plant because there are no firm figures on the cost of such a plant.

VI. Conclusions

The Vickers-Krebs plant seems to be the orthodox chlorate plant as is presently used in this country. The investment for this plant however, seems to be about $1-2,000,000 lower than estimated by OMCC in previous reports. Production cost for sodium chlorate is $91.61/T at a plant located at Saltville. This price includes freight equalization from Columbus, Mississippi, the location of existing chlorate plants. Return on an investment of $3,197,000 is 13.4% with a payout period of 5 years.

[fol. 988] The Pechiney plant uses a refrigeration method for separating chlorate from chloride. This operation, to the best of our knowledge, is not used in this country. Production costs for items other than those involving investment are about $1.80 per ton $NaClO_3$ higher for the Pechiney over the Vickers-Krebs plant. This increase in cost, however, may not be indicative of total production cost when the investment in the Pechiney plant is known.

VII. Recommendations

It is recommended that further negotiations be carried out with Pechiney in order to get plant specifications from which a capital investment estimate can be made. This investment will be necessary in order to fully compare the two plants described in this report.

Studies should be continued to find the best possible location for a chlorate plant.

Experimental work should be continued on improved chlorate cell development.

Attachments

Figure 1	Flowsheet, Vickers-Krebs Sodium Chlorate Plant
Figure 2	Pechiney Chlorate Process
Table I	Streams Through Chlorate Plant Vickers-Krebs Sodium Chlorate Plant
Table II	Production Cost Estimate Sodium Chlorate in Vickers-Krebs Plant
Table III	Financial Criteria Sheet, 40 T/day $NaClO_3$, Vickers-Krebs Plant, Saltville, Va.
Table IV	Freight Equalization Table

Table I

Table I

VICKERS-KREBS SODIUM CHLORATE PLANT

STREAMS THROUGH CHLORATE PLANT

		NaClO3	NaCl	H2O
1.	Product	3,335	0.7	4	4
2.	Wet crystals	3,335	0.7	4	51
3.	Water from drier				30
4.	Wash water				711
5.	Recycle from crystalliser total	4,322	46	296	4,665
6.	Water from crystalliser				800
7.	Feed to crystalliser	7,657	46.7	300	4,805
8.	Salt slurry	100	1	1,348	60
					+ 2,410 (condensate)
9.	Water from evaporator				7,437
10.	Feed to evap.	7,757	47.7	1,648	12,332
11.	Product of cells	5,596	24.	1,500	10,000
12.	Recycle from crystalliser	2,161	23.3	148	2,332
13.	Recycle to brine plant	2,161	23.3	148	2,332
14.	Fresh brine			1,844	5,520
15.	Recycle to cells	891,000	3,580	215,600	1584,000 (4000 US GPM)
16.	Modifications in cells	+ 3,335		- 1,840	- 1,524

All figures in lbs. per hour

[fol. 990]

H-35.507 (AJH) Table II

PRODUCTION COST ESTIMATE

ESTIMATE NO. _____ PRODUCTION OF Sodium Chlorate in Vickers-Krebs Plant
BY A.J.H. PRODUCTION RATE 40 T $NaClO_3$/day SERVICE FACTOR 100 %
DATE 12/8/58 LOCATION Saltville, Va. COSTS PER Mo. (TERM), Ton (UNIT)

INVESTMENT Lect. $2,497,000 less $1,190,000 Total	UNIT	UNIT PRICE	UNITS PER TERM	UNIT CONSUMPTION	ITEM COST PER TERM	GROUP COST PER TERM	ITEM COST PER UNIT	GROUP COST PER UNIT
RAW MATERIALS								12.39
Brine (Purified)	ton	$.70		.574			.403	
HCl	lb.	$.007		50			.35	
Graphite	lb.	$.335		23			7.70	
CrO_3	lb.	$.30		2.5			.81	
NaOH (50%)	lb.	$.014		4			.06	
Na_2CO_3	lb.	$.019		10			.19	
$BaCl_2$	lb.	$.09		32			2.88	
UTILITIES								44.97
FUEL Bunker C	lb.	$.015		185			2.77	
STEAM 1000	lb.	$.50		3			1.50	
POWER	KWH	$.0060		200			1.20	
WATER								
AIR								
Electrolytic	KWH	$.0065		6100			39.50	
LABOR								6.29
OPERATING	M.H.	2.10		1.78			3.74	
MONTHLY	M.H.	3.40		.75			2.55	
OVERHEAD								
REPAIR & MAINT.								2.30
LABOR	M.H.	2.00		.64			1.28	
MATERIALS							.64	
OVERHEAD	30% Labor						.38	
SUPPLIES & MISC.								.50
LABORATORY								
TRANSPORTATION Tank Cars at $3.50/T								3.50
TOTAL OPERATING COST								57.56
DEVELOPMENT								
OVERHEAD								17.56
DIRECT Figured as Monthly Labor								
INDIRECT $65,000/Yr.							4.45	
TAXES & INSURANCE 1% Inv./Yr.							1.81	
DEPRECIATION 6.67% Inv/Yr.							11.30	
MANUFACTURING COST								75.12
PRODUCTION COST								87.51

INVESTMENT Rept: 2,497,000 less 3,192,000 Total	UNIT	UNIT PRICE	UNITS PER TERM	UNIT CONSUMPTION	ITEM COST PER TERM	GROUP COST PER TERM	ITEM COST PER UNIT	GROUP COST PER UNIT
RAW MATERIALS								12.39
Brine (Purified)	ton	$.70		.574			.403	
HCl	lb.	$.007		50			.35	
Graphite	lb.	$.335		23			7.70	
CrO_3	lb.	$.30		2.7			.81	
NaOH (50%)	lb.	$.014		4			.06	
Na_2CO_3	lb.	$.019		10			.19	
$BaCl_2$	lb.	$.09		32			2.88	
UTILITIES								44.97
FUEL Bunker C	lb.	$.015		185			2.77	
STEAM 1000	lb.	$.50		3			1.50	
POWER	KWH	$.0060		200			1.20	
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AIR								
Electrolytic	KWH	$.0065		6100			39.50	
LABOR								6.29
OPERATING	M.H.	2.10		1.78			3.74	
MONTHLY	M.H.	3.40		.75			2.55	
OVERHEAD								
REPAIR & MAINT.								2.30
LABOR	M.H.	2.00		.64			1.28	
MATERIALS							.64	
OVERHEAD	30% Labor						.38	
SUPPLIES & MISC.								.50
LABORATORY								
TRANSPORTATION Tank Cars at $3.50/T								3.50
TOTAL OPERATING COST								57.56
DEVELOPMENT								
OVERHEAD								17.56
DIRECT Figured as Monthly Labor							-	
INDIRECT $65,000/Yr.							4.45	
TAXES & INSURANCE 1% Inv./Yr.							1.81	
DEPRECIATION 6.67% Inv/Yr.							11.30	
MANUFACTURING COST								75.12
PRODUCTION COST								87.51
CREDIT/FOR/BYPRODUCTS Freight Equalization								4.35
NET PRODUCTION COST								91.86
NOTES								

Table III

FINANCIAL CRITERIA SHEET

40 T/day $NaClO_3$

Wickers-Krebs Plant, Saltville, Va.

Investment	$3,197,000
Gross Sales	$2,350,000
Deduct	
Cost of Mfgr. (14,600 T at $91.86/T)	$1,340,000
Sales Expense (5% of Gross Sales)	118,000
	$1,428,000
Gross Profit	892,000
Income Tax (52%)	464,000
Net Income	428,000
Return on Investment	13.4%
Pay-Out Time	5 yrs.

Table IV

FREIGHT EQUALIZATION TABLE

Location	Tons $NaClO_3$ per Day	Saltville, Va.	Columbus, Miss.	$/yr. Frt. Equal. to Columbus, Miss
Alabama				
Brewton	6	99	65	14,900
Coosa Pines	2	82	55	3,950
Demopolis	5	93	42	18,600
Mobile	3-1/2	105	61	11,200
Naheola	3	96	48	10,500
Arkansas				
Crossett	2	116	71	6,600
Pine Bluff	8	110	71	22,700
Florida				
Ferrandina	1-1/2	96	92	4,400
Foley	6	99	83	7,000
Palatka	3	102	93	1,970
Georgia				
Brunswick	2	92	88	580
Jesup	10	88	87	730
St. Marys	5-1/2	98	95	1,200
Louisiana				
Bastrop	3	116	67	10,800
Springhill	3	122	77	9,800
Monroe	6	116	67	21,500
Maine				
Great Works	2	136	174	0
Lincoln	4	138	179	0
Maryland				

Location	Tons $NaClO_3$ per Day	Saltville, Va.	Columbus, Miss.	$/yr. Frt. Equal. to Columbus, Miss
Alabama				
Brewton	6	99	65	14,900
Coosa Pines	2	82	55	3,950
Demopolis	5	93	42	18,600
Mobile	3-1/2	105	61	11,200
Nahecla	3	96	48	10,500
Arkansas				
Crossett	2	116	71	6,600
Pine Bluff	8	110	71	22,700
Florida				
Ferrandina	1-1/2	96	92	4,400
Foley	6	99	83	7,000
Palatka	3	102	93	1,970
Georgia				
Brunswick	2	92	88	580
Jesup	10	88	87	730
St. Marys	5-1/2	98	95	1,200
Louisiana				
Bastrop	3	116	67	10,800
Springhill	3	122	77	9,800
Monroe	6	116	67	21,500
Maine				
Great Works	2	136	174	0
Lincoln	4	138	179	0
Maryland				
Luke	3	85	127	0
Michigan				
Filer City	2	108	122	0
Mississippi				
Moss Point	3	108	65	9,600
Natchez	7	115	63	26,500

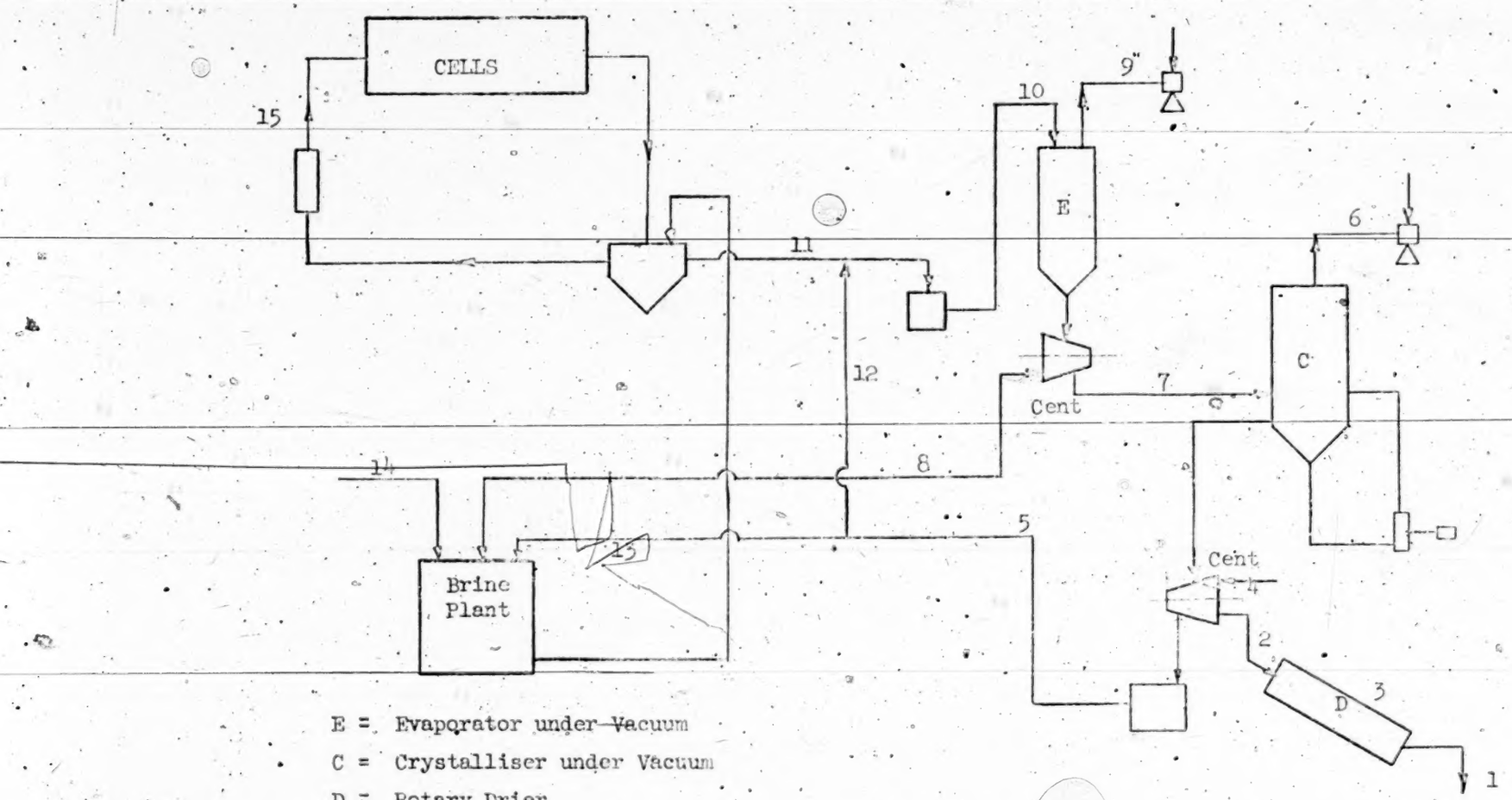
Table IV

FREIGHT EQUALIZATION TABLE

Location	Tons $NaClO_3$ per day	Saltville, Va.	Columbus, Miss.	$/yr. Frt. Equal. to Columbus, Miss
New York				
Ticonderoga	1	118	158	0
North Carolina				
Acme	8	83	108	0
Canton	6	57	88	0
Pennsylvania				
Spring Grove	4	82	127	0
Tyrone	2	89	132	0
Texas				
Evadale	4	133	89	12,800
Lufkin	2	132	89	6,300
Pasadena	4	139	98	7,100
Virginia				
Covington	4	62	115	0
Franklin	4	72	118	0
Wisconsin				
Nekoosa	2	126	121	730
	131.5			209,460

Calculation of Freight Equalization per ton $NaClO_3$.

$$\text{Freight Equalization/T } NaClO_3 = \frac{(40 \text{ T/day Prodn}) (\$209,460)}{(131.5 \text{ T/day Total Market}) (40)(365)} = \$4.35 \text{ per ton } NaClO_3$$



E = Evaporator under Vacuum

C = Crystalliser under Vacuum

D = Rotary Drier

Figure 1 FLOW SHEET, VICKERS-KREBS SODIUM CHLORATE PLANT

Figure 1

Figure 2 PECHINEY CHLORATE PROCESS

Figure 2

[fol. 997] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 27

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.508 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Rep. By	
B. H. Wojcik					Chg. No. 743-2010
B. H. Nicolaisen					
W. C. Gardiner	X	X			
H. A. Bruson					Report Dated: 1/9/59
A. J. Holmes			X	X	
G. D. Byrkit					Report Typed: 1/20/59:CB
Library					
S-R. C. Harshman					
S-T. H. Dexter					
S-C. M. White					
S-B. H. Wojcik					
S-R. M. Thomas					
S-G. K. Weisse					
S-C. W. MacMullen					

Economic Location of Sodium Chlorate Plant

Approved: W. C. Gardiner. Signed: A. J. Holmes.
Date: 1/21/59. Date 1/20/59.

[fol. 998] Table of Contents

		Page No.
I.	Summary	2
II.	Objective	3
III.	Introduction	3
IV.	Optimum Plant Location at Existing Facility	3
V.	Comparison of "Grass Roots" Plant with Existing Facility	4
VI.	Conclusions	4
VII.	Recommendations	4

Attachments

Table I	OMCC Chemicals Division Unit Costs
Table II	Dollars per Year Freight Equalization from Columbus, Miss. Needed for OMCC to Supply the Listed Consumers
Table III	Added Investment Required for "Grass Roots" $NaClO_3$ Plant
Table IV	Production Cost Estimate, $NaClO_3$ at TVA Area
Table V	Production Cost Estimate, $NaClO_3$ at Saltville, Va.
Table VI	Financial Criteria Sheet, Saltville and TVA Area
Figure 1	Unit Costs and Their Effect on Sodium Chlorate Production Cost
Figure 2	Map of Sodium Chlorate Consumers

[fol. 999] I. Summary

A study has been made to determine the most economic location for a sodium chlorate plant selling to paper mills for chlorine dioxide bleaching. Considering both freight rates and production costs Saltville, Va. seems to be the best location should the plant be built at an existing OMCC Chemical Division plant. Estimates have been made for a "grass roots" plant in a low cost power area. Production costs for such a plant are about the same as for Saltville but the investment will be higher. Further information gathering on a "grass roots" plant is indicated.

[fol. 1000] II. Objective

The object of this survey was to determine the optimum location for a plant selling sodium chlorate to paper mills for chlorate dioxide generation for bleaching.

III. Introduction

A turn-key proposal for a chlorate plant at an existing OMCC facility has been received from Vickers-Krebs Ltd. of Canada. Using these figures to determine investment requirements with unit costs and freight rates to determine production costs, the optimum location for a chlorate plant can be made. A comparison is also made between the best location at an existing OMCC facility and a "grass roots" plant.

IV. Optimum Plant Location at Existing Facility

Unit costs for several of the Industrial Chemicals Division plants have been transmitted to W. C. Gardiner by G. F. Comer in a letter dated 2/12/57. These unit costs are not out-of-pocket costs and, therefore, the results which are obtained by their use would be improved when the plant is integrated into an existing facility. Some of the more important unit costs are given in Table I. The effect of these unit costs on sodium chlorate production cost is shown in Figure 1.

Potential customers for sodium chlorate are paper mills using chlorine dioxide for bleaching pulp. A list of these consumers and their daily requirements are given in a Mar-

ket Research Report on Sodium Chlorate dated December 1956 by John J. Hayes. A list of these consumers is given in Table II and their geographic location is shown on the map in Figure 2.

Freight rates from various producing points to chlorate customers have been obtained from J. J. Kerr of the Baltimore office on 12/5/58. These rates apply to the shipment of sodium chlorate in tank cars. They are given in Table II. Calculations were made to equalize these freight rates on Columbus, Mississippi where Hooker and American Potash have chlorate plants. These freight equalization values are given in Table II. Also listed in Table II is the number of tons per day of sodium chlorate that could be shipped from an OMCC plant where freight rates would be lower than that from Columbus, Miss. In some cases this is equal to or greater than the plant capacity so the need for consideration of freight equalization in these plant locations may be unnecessary. This is a question that can best be answered by the product manager.

Based on unit production costs from Table I and Figure 1 Saltville gives the lowest production cost. Lake Charles is second but is approximately $9/Ton higher. Next is McIntosh $14/Ton higher with Brunswick being $30/Ton higher. Whether freight equalization is considered or not, Saltville seems to be the logical location for a sodium chlorate plant.

[fol. 1001] V. Comparison of "Grass Roots" Plant With Existing Facility

A "grass roots" chlorate plant should be considered because it could be placed in a location, TVA area for instance, where the power rates are substantially lower than those found at an existing OMCC plant. A "grass roots" plant however would require a higher investment for construction of offices, repair shops, etc. that would otherwise be available at an existing plant. An estimate of the additional capital required is given in Table III. These figures are based on estimates made by Blaw-Knox in 1951 for the McIntosh plant. Factoring up to present day costs the added investment is $670,000. It should be remembered that this is a very rudimentary estimate.

Average power costs in the TVA area were given as $0.00421/KWH in the Jan. 3, 1959 issue of Chemical Week.

A production cost estimate was made for a "grass roots" plant based on the above information and is given in Table IV. An estimate for producing sodium chlorate at Saltville is also included for comparison in Table V. Financial Criteria for the two plants are given in Table VI. Production cost of sodium chlorate at Saltville is $88.18/Ton and is $87.81 or practically the same at a "grass roots" plant. Return on Investment for the Saltville plant is 14.2% and is 11.7% at a "grass roots" plant as shown in Table VI.

Because of the economic closeness of the Saltville and "grass roots" plants it is recommended that further information be gathered on a "grass roots" plant. Freight equalization might even make such a plant more attractive. Vickers-Krebs could supply the necessary investment requirements. Prevailing unit costs for the TVA area should be procured.

VI. Conclusions

1. Saltville, Va. is the most economic location for a sodium chlorate plant should it be built at an existing OMCC Chemicals Division facility.

2. A "grass roots" plant in the TVA area would require more investment than a plant located at an existing facility; however, such a plant might be more economical because of lower freight equalization and lower power cost.

VII. Recommendations

1. It is recommended that Vickers-Krebs be asked to provide an estimate for the necessary facilities required by a "grass roots" chlorate plant.

2. Unit costs of salt, labor and electricity should be obtained for various points in the TVA area.

3. The economics of a "grass roots" plant should be reviewed after the above information is obtained.

[fol. 1002] 4. The sodium chlorate market picture should be brought up to date before any decisions are made on the size and location of a sodium chlorate plant.

5. Work should be continued on development of improved sodium chlorate production technology.

[fol. 1003] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 28

February 11, 1959.

Copies: B. H. Wojcik (3)
B. H. Nicolaisen
A. J. Holmes
G. D. Byrkit

Memorandum

Sodium Chlorate—Vickers-Krebs

Conference in offices of Canadian Vickers Limited, Montreal, February 10, 1959.

Present: Mr. Richardson, President, Canadian Vickers Ltd., Mr. Russell Thoman, General Manager, Canadian Vickers Ltd., Mr. Robert B. Spence, Sales Manager, Canadian Vickers Ltd., Dr. M. Zundel, Vickers-Krebs Ltd., Mr. B. H. Nicolaisen, Olin Mathieson Chemical Corporation, Dr. W. C. Gardiner, Olin Mathieson Chemical Corporation.

We presented Vickers-Krebs with a photostat of Chemical Age article "Bright Future for I.C.I.'s Newly Developed Electrodes", January 3, 1959, page 9. We also gave them recent literature from Crucible Steel describing the use of platinized titanium anodes for cathodic protection of ships.

This literature was used to illustrate the fact that ICI has published information disclosing that platinized titanium is useful for chlorine and chlorate anodes. We told them that this literature had been distributed to the Chlorine Institute and that ICI had made numerous contacts by letter endeavoring to promote the use of platinized titanium anodes in the chlorine industry. We told them that ICI had offered us cooperative assistance but had recently chosen to restrict their offer. We further told them that ICI was not sure of their patent position but that we were assuming that they might obtain a good patent for their development. We had done successful experimental work to confirm their claims on the usefulness of the material but had extended the work to find other materials besides titanium which are useful for the purpose. We were particularly impressed with the possibility of platinized titanium for chlorate cells because of low voltage, high temperature, freedom from anode re-

placement and low hydrochloric acid consumption. We would continue to develop the base metal such as titanium or its substitutes also the platinum plating techniques. Application to the chlorate cell would be the objective of a joint development program which we had come to Montreal to discuss.

Our management is anxious to get into the chlorate business and are interested in the Vickers-Krebs proposal for a chlorate plant but feel that they cannot afford to overlook the possibility indicated for operation with platinized titanium anodes. We told them that Mr. Block had instructed us to find out if they were willing to give us their know-how in constructing and developing a chlorate cell in exchange for rights to exploit the cell which might be developed.
[fol. 1004] They indicated that they were sufficiently interested to discuss further any suggestions we had for carrying out the proposal.

We told them that we had developed a number of ideas which had been discussed with only one other member of our organization. These ideas were entirely our own and we had not had the opportunity of discussing them with our top management, however we thought that they were in the spirit of our instructions and would serve as points to be discussed by both parties. The points as suggested to Vickers-Krebs are itemized as follows:

1. This development would be for chlorate cells only.
2. Olin Mathieson would pilot a 190 KW cell and give Vickers-Krebs results of test.
3. OM would take out U.S. patents.
4. OM would take out and maintain foreign patents in countries to be mutually agreed upon.
5. VK and OM would cooperate on prosecution of U.S. and foreign patents.
6. OM would not disclose to a third party except for patent purposes any confidential information obtained from VK.
7. VK would have exclusive rights to build, sell or operate under said patents outside USA.
8. OM would grant non-exclusive licenses to VK plants in USA on same terms as any other licensee.
9. If a continuing exchange of information is agreed upon then OM would have to ask that any new development by

Krebs related to chlorate cells with non-graphic anodes for 5 years after development under this agreement stops would be licensed to OM on royalty-free basis.

Discussion of Suggested Points of Agreement

Vickers is willing to consider not only chlorate but mercury cell development. I pointed out that we already were tied up with Blaw-Knox on mercury cell licensing so that at this time chlorate only could be considered.

Vickers-Krebs considers that the only reasonable basis for rapid development would be through continued consulting services during the progress of the development. They have a great deal of information not incorporated in their present cell and process which might be of value to the new cell and its operating conditions which would develop during the progress of the development.

[fol. 1005] They had no objections to our patent proposals.

Point No. 8 was not to their liking and they thought that a reversal of the parties might make it acceptable, namely "Vickers-Krebs would grant non-exclusive licenses to OM clients in US on same terms as any other licensee". We did not express our opinion on this other than that we would consider it further. VK would like to have some assurance that plants built in USA would be built by VK since this is their primary business.

We amplified our thinking behind point No. 9 by explaining that we needed protection from the possibility of Krebs et Cie developing in other directions from our platinized titanium work but stimulated by this work. We had suggested 5 years as a reasonable time during which we might want the protection. Mr. Thoman thought that this might be too long but agreed with it in principle.

VK thought that one principle had not been covered in the points suggested by us. VK places some value on their know-how and this is all that they have to sell in their chlorate cell proposal. They see the possibility that the first plant by Mathieson might be the only plant which they have the oportunity of building and they think that they should receive some compensation for their know-how. They point out that OM would obtain benefits from the development and their know-how by continuing profitable operations. They would like to see some immediate compensation to them

for the know-how that they would contribute. They might want to suggest some royalty basis or some lump sum figure. It is obvious that they have no dollar value for their know-how. At an earlier conference Mr. Spence stated that if he asked 6 members of their Company for an expression of this value he would get 6 different answers.

Mr. Thoman asked whether we favored a lump sum royalty or continuing payments. We said that we had experience with both but he indicated that most people favored lump sums.

Conclusions

VK is favorably disposed towards working with us. It is necessary to check with other interested parties in their organizations, probably Krebs. They will give us their decision just as soon as they possibly can which they assure us will be before the end of February.

W. C. Gardiner.

WCG:CB

[fol. 1006] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 29

Feb. 16, 1959.

Dr. W. C. Gardiner, Niagara Falls
Dr. B. H. Wojcik, Baltimore

Mr. B. H. Nicolaisen
Mr. E. Block

Sodium Chlorate Vickers-Krebs

Your conference notes pertaining to the meeting on Sodium Chlorate at Vickers-Krebs in Montreal, were discussed with Mr. Block.

The first question raised by Mr. Block concerns the size of the cell. He wants to make sure we will work on a cell which, when proven out, will be applicable to commercial production.

In lieu of the nine points listed in your report, Mr. Block suggests we substitute the following:

1) Any cells built for OMCC as a result of this joint study will be free of any royalty.

2) Royalty charges for any cell built for anyone else, because of "know-how" or patents resulting from the joint effort, will be split equally between OMCC and Vickers-Krebs.
3) OMCC will not be obligated to spend in excess of (x) dollars on the joint effort.
4) Vickers-Krebs will not be obligated to spend in excess of (y) dollars on the joint effort.

The amount of money to be spent by OMCC will be set as soon as we have an estimate of the total development cost. In no event are we to make any commitments which have not been cleared through the Baltimore office and especially through the legal department.

B. H. Wojcik.

BHW:feg

[fol. 1007] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 31

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.509 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Rep By	Chg. No.: 743-2011
B. H. Wojcik					
B. H. Nicolaisen					
W. C. Gardiner	X	X			Report Dated: 2/25/59
H. A. Bruson					
A. J. Holmes			X	X	Report Typed: 4/4/1459:CB
G. D. Byrkit					
Library					
S-R. C. Harshman					
S-T. H. Dexter					
S-C. M. White					
S-B. H. Wojcik					
S-R. M. Thomas					
S-G. K. Weise					
S-C. W. MacMullen					

Geographic Survey of Electricity Cost for Sodium Chlorate Plant

Approved: W. C. Gardiner. Signed: A. J. Holmes.

Date: 4/13/59. Date: 4/9/59.

[fol. 1008] Table of Contents

Page No.

Summary 3
Objective 4
Introduction 4
Discussion 4
Conclusions 5
Recommendations 5

Table I Minimum Electrical Energy Charges in Southeastern U. S.
Table II Low Power Rate Locations in Southeastern U.S.
Table III Power Rates at OMCC Chemicals Division Plants

[fol. 1009] Summary

Electricity costs for a 40 ton per day sodium chlorate plant in southeastern U.S. have been reviewed. Electric power costs at Saltville, Va., McIntosh, Ala., and Lake Charles, La. are about the same, 6.1 mils per KWH. TVA power costs are the lowest in the area 4.17 mil per KWH, and are the same throughout the TVA area. The production cost in the TVA area for sodium chlorate is 12% lower than at Saltville or McIntosh based on electricity costs.

[fol. 1010] Objective

This survey was made to determine electrical power rates at various locations for a 40 ton per day sodium chlorate plant in southeastern United States.

Introduction

Electric power represents about 30% of the production cost of sodium chlorate, therefore, it is important that the cost of electricity be given every consideration in the location of a sodium chlorate plant. Electricity costs at existing OMCC Chemicals Division plants are not the lowest rates available in southeastern U.S. so this study was made to determine where the minimum cost power is located.

The expenses incurred in purchasing electric power are broken down into two groups, demand charge and energy charge. Demand charge is the minimum rate paid per month for the contracted amount of kilowatts needed to operate the plant. The energy charge is based on the actual number of kilowatt hours of electricity used per month.

Discussion

The power requirements for a 40 ton per day sodium chlorate plant were given in a proposal received from Vickers-Krebs. The plant uses 6100 KWH/ton $NaClO_3$ for electrolytic power and 200 KWH/ton $NaClO_3$ for auxiliaries. The demand load for these power requirements is 10,500 KW. The plant would use 7,580,000 KWH per month.

The National Electric Rate Book has been obtained from the Federal Power Commission. This book gives the rate

schedules throughout the U.S. for residential, commercial and industrial services for communities with populations over 2500. Minimum energy charges have been tabulated for all the utility companies in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia. These rates are given in Table I. Average costs per KWH has been calculated for all utility companies whose minimum energy charge was equal to or less than that for Saltville, Va.

These utilities and the average cost/KWH are given in Table II. Power rates at OMCC Chemicals Division plants are given in Table III. Rates for Saltville and McIntosh were taken directly from the existing power contracts.

The differences in power costs do not look like much, but power costs are about 30% of the production cost of sodium chlorate. Using the power costs in Table II the production costs per ton sodium chlorate at Saltville, McIntosh, and a TVA plant site are respectively, $87, $87 and $76. The advantages of the plant being located in a TVA area, the lowest power rate area in the southeastern U.S., are evident.

[fol. 1011] Conclusions

1. Power costs at Saltville and McIntosh are essentially the same, 6.1 Mil/KWH.

2. Power Costs in the TVA area are the lowest in the southeast, 4.17 Mil/KWH. This area includes almost all the state of Tennessee, the upper portion of Alabama and Mississippi and parts of Georgia and Kentucky. Huntsville, Ala. and Chattanooga, Tenn. are in this area.

3. Other Chemicals Division plants having power rates about the same as Saltville and McIntosh are: Aberdeen, N.C., Lake Charles, La., and Niagara Falls, N.Y.

4. Locating a chlorate plant in the TVA area reduces the production cost of chlorate $11/Ton or 12% based on the differences in power costs as compared to Saltville and McIntosh.

Recommendations

1. It is recommended that the TVA area be given every consideration for the location of a sodium chlorate plant.

2. Freight rates from Chattanooga should be compared with those of other Chemicals Division plants and Hooker's Columbus, Miss. plant.

[fol. 1012] Table III

Power Rates at OMCC Chemical Divisions Plants

Aberdeen, N. C.	5.9	Mil/KWH
Bossier City, La.	>7	Mil/KWH
Doe Run, Ky.	>7	Mil/KWH
East Pt., Ga.	>11	Mil/KWH
Huntsville, Ala. (Government Plant)	4.17	Mil/KWH
Lake Charles, La.	6.06	Mil/KWH
Leland, Miss.	>30	Mil/KWH
McIntosh, Ala.	6.1	Mil/KWH
Niagara Falls, N.Y.	6.05	Mil/KWH
North Little Rock, Ark.	>7	Mil/KWH
Saltville, Va.	6.1	Mil/KWH
Chattanooga, Tenn. (Metals Div. Plant)	4.17	Mil/KWH

[fol. 1013] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 32

Chemicals Division Capital Requirements for Major Expansion Items

1959-1964 Inc.
(EX. Organics)

Report dated April 10, 1959, and Revised Exhibits 26, 29 and 30 dated October 1959

[Extracts]

[fol. 1014] Sodium Chlorate

Production of sodium chlorate has increased from 22,000 tons in 1950 to 64,000 tons in 1958. This growth is directly related to demand for brighter paper and paperboard, which has required pulp and paper mills to produce high-brightness pulps. Conventional bleaching techniques cannot efficiently achieve the highest levels of brightness now in demand and as a result, paper producers have turned to bleaching techniques requiring the use of chlorine dioxide, for which sodium chlorate is a raw material. Since chlorine dioxide cannot be transported as such, sodium chlorate is purchased by the mills and used for the captive manufacture of chlorine dioxide.

Total annual U.S. capacity for production of sodium chlorate is estimated at—tons..... 98,000
and it is visualized that demand will exceed present capacity by 1962. Present annual requirements for sodium chlorate in the southeastern part of the United States, where there is a heavy concentration of pulp and paper mills, is estimated at—tons..... 43,000
as compared with annual production capacity located in the southeast of only—tons..... 39,000

The chlorine dioxide production process used by the majority of the pulp mills in the southeast was developed by Olin Mathieson at its Niagara Falls Laboratory. The engineering and operating know-how so developed has been made available to the mills at no cost. Our technical service men have provided valuable assistance to the paper mills in solving start-up and operational problems. They are well known and respected in the industry.

We are confident that with a sodium chlorate facility located in the southeast we would be able to secure approximately one-third of the southeastern tonnage, or approximately—per annum—tons 14,000

After careful study of several locations we have concluded that a producing plant at McIntosh, Alabama would be the most advantageous from the standpoint of all factors involved.

Exhibit 23 (map) shows the proposed McIntosh plant in relation to all other competitive plants, together with the 30 pulp mills representing the prime market from which we propose to secure the major portion of our sales tonnage.

Please note that the proposed McIntosh location would be advantageous to 11 mills now consuming an estimated 17,350 tons of sodium chlorate annually, by providing a more favorable f.o.b. point.

It is recommended that a sodium chlorate facility having an annual capacity of approximately 15,000 tons be installed an an addition to our present McIntosh, Alabama plant, such facility to be ready for operation in 1961. We are advised that a competitive chemical producer, new to the sodium chlorate field, is giving serious consideration to the installation of a sodium chlorate producing plant; and therefore we further recommend that announcement be made at once of our plans for the new McIntosh chlorate facility.

Exhibit 24 is our tabulation of estimated results of investment in sodium chlorate facilities showing investment of $4,100,000, estimated to earn profit after taxes of 19.9% against sales and 11% against investment, with cash recovered in 6.4 years.

[fol. 1015] Exhibit 24.

Summary of Investment Results

Sodium Chlorate

Annual Production—Tons	14,000
Gross Investment	$4,100,000
Net Sales	$2,264,000
Pre-Tax Profit	$ 937,000
% to Net Sales	41.4%
Net Profit	$ 450,000
% to Net Sales	19.9%
% to Gross Investment	11.0%
Cash Profit	$ 639,000
Cash Recovery Period	6.4 Yrs.
Year Plant Required	1961
Time Required for Completion From Date of Authorization	18 Mons.

[fol. 1016]

EXHIBIT 26
REV. 10/59

PLANT ENGINEERING AND CONSTRUCTION SCHEDULE

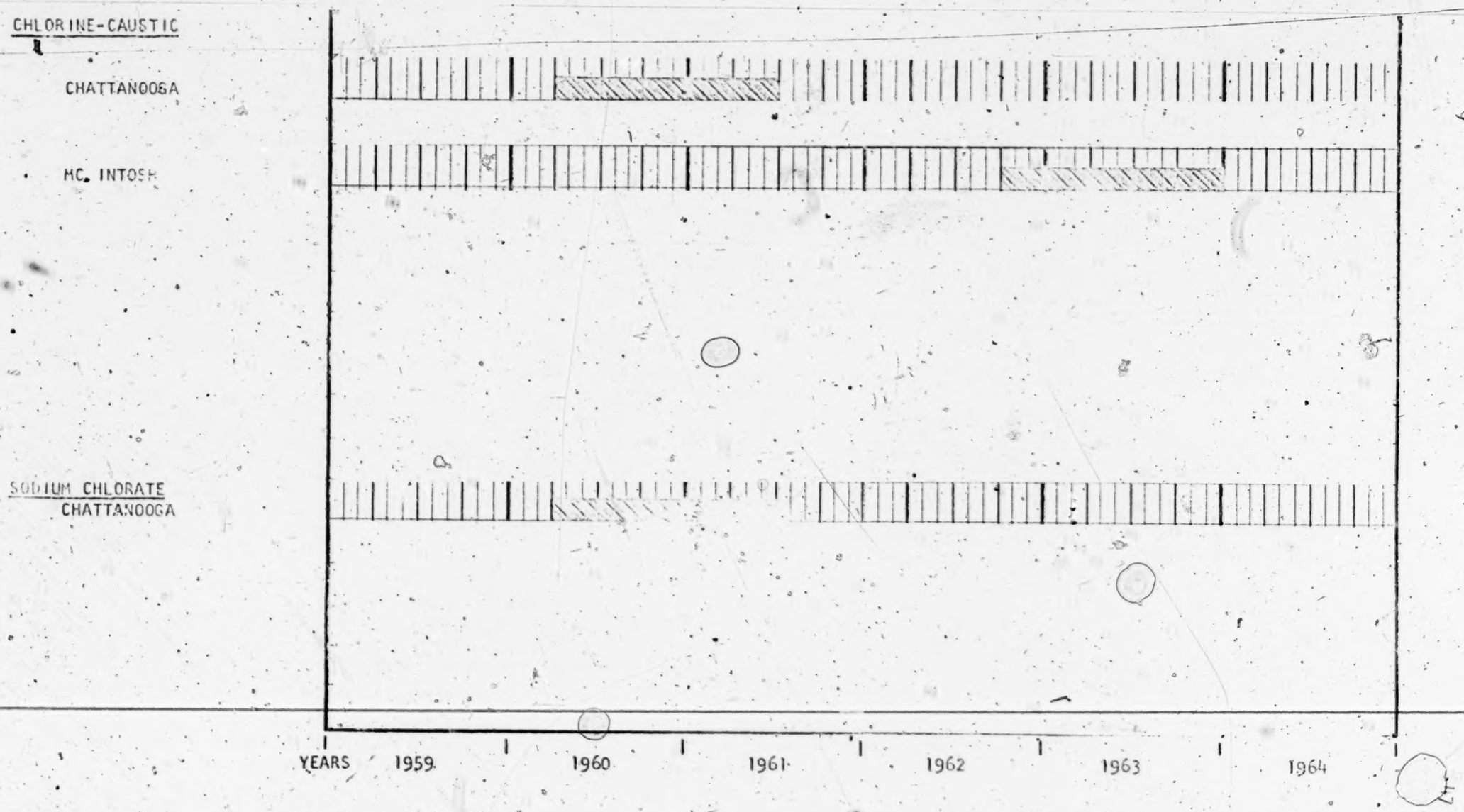


Exhibit 29

[fol. 1017]

Annual Cash Flow
(000 Omitted)

	1959		1960		1961		1962		1963		1964	
	Net Outlay	Cash Profit	Net Outlay	Cash Profit	Net Outlay	Cash Profit	Net Outlay	Cash Profit	Net Outlay	Cash Profit	Net Outlay	Cash Profit
Chlorine-Caustic —McIntosh	—	—	230	—	8,470	—	800	1,800	—	1,990		1,990
			3,230	—	870	420	—	640	—	640	—	640
Sodium Chlorate												
Grand Total	$ 1,720	$ 70	$14,530	$ 730	$24,750	$ 3,200	$19,870	$ 7,850	$12,130	$11,830	$ 860	$14,280

[fol. 1018]

Chlorine-Caustic, —Chattanooga	—	—	5,090	—	6,160	700	—	1,750	—	1,750	—	1,750
—McIntosh	—	—	—	—	—	—	230	—	8,470	—	800	1,800
Sodium Chlorate —Chattanooga			1,610	—	1,980	250	—	680	—	680	—	680
Grand Total	$ 940	$ —	$17,680	$ 190	$15,790	$ 3,790	$20,215	$ 7,050	$11,090	$11,080	$ 800	$13,570

[fol. 1019]

Exhibit 30

Economic Summary
(000 Omitted)

	Year	Net Outlay	Net Sales	Net Profit	% of Net Sales	% Return On Gross Investment	Cash Profit	Payout
Chlorine-Caustic —McIntosh	1962	9,500	6,210	1,520	24.5	16.0	1,990	4.8
Sodium Chlorate	1961	4,100	2,260	450	19.9	11.0	640	6.4
Totals—Productive Facilities		$73,860	$46,860	$10,570	22.6	14.8	$14,450	5.1

[fol. 1020]

Chlorine-Caustic								
—Chattanooga	1961	11,250	6,220	1,190	19.1	10.6	1,750	6.4
—McIntosh	1964	9,500	6,210	1,520	24.5	16.0	1,990	4.8
Sodium Chlorate								
—Chattanooga	1961	3,590	2,350	470	20.0	13.1	680	5.3
Totals—Productive Facilities		$66,515	$46,750	$10,270	22.0	15.4	$13,760	4.8

[fol. 1021] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 33

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

H-35.510 Electrochemical Survey Report
General Subject: H—Miscellaneous Inorganic Chemicals

Name	Res. Mgr.	Super.	Work By	Rep. By	
B. H. Wojcik					Chg. No.: 743-2011
B. H. Nicolaisen					
W. C. Gardiner	X	X			Report Dated: 4/17/59
A. J. Holmes			X	X	Report Typed: 5/7/59 vd
G. D. Byrkit					
H. A. Bruson					
J. B. Haglind					
S-R. C. Harshman					
S-T. H. Dexter					
S-C. M. White					
S-B. H. Wojcik					
S-R. M. Thomas					
S-G. K. Weisse					
S-G. W. MacMullen					

Economic Location of Sodium Chlorate Plant Using Platinized Titanium Electrode Cells

Approved: W. C. Gardiner. Signed: A. J. Holmes.

Date: May 8, 1959. Date: 5/7/59.

[fol. 1022] Table of Contents

	Page No.
Summary	3
Objective	4
Introduction	4
Technical Aspects of New Chlorate Cell Plant	4
Economics of New Chlorate Cell Plant Location	5
Conclusions	6
Recommendations	7

Attachments;

Table I	Streams Through Conventional Chlorate Plant	8
Table II	Streams Through OMCC Process Chlorate Plant	9
Table III	Rail Miles to Sodium Chlorate Consumers	10
Table IV	Freight Equalization Calculation	11
Table V	Production Cost Estimate, Saltville, Va.	12
Table VI	Production Cost Estimate, McIntosh, Ala.	13
Table VII	Production Cost Estimate, Chattanooga, Tenn. Not on River	14
Table VIII	Production Cost Estimate, Chattanooga, Tenn. On River	15
Table IX	Financial Criteria OMCC Chlorate Process—40 T/Day $NaClO_3$ Plant	16
Figure 1	Stream Flow Sheet Conventional Sodium Chlorate	17
Figure 2	Stream Flow Sheet OMCC Sodium Chlorate Process	18

[fol. 1023] Summary

The use of platinized titanium electrodes in a sodium chlorate cell may be much more efficient than conventional graphite electrodes. The following information is based on operation of a 9 ampere laboratory cell: One third the number of cells are required. Cells can operate at the boiling point of the electrolyte thus eliminating some process evaporation equipment and auxiliaries. Plant investment is reduced 11.7%. Production cost is reduced 9.4%.

Chattanooga, Tenn. is a better location for a chlorate plant than Saltville, Va., or McIntosh, Ala. Production costs at Chattanooga are 10-15% lower. Return on investment is 11-19% higher at Chattanooga.

[fol. 1024] Objective

This report was written to describe the new sodium chlorate cell plant developed at OMCC and to present the economics of such a plant at various locations.

Introduction

The use of a platinum plated titanium electrode for chloride electrolysis has been disclosed by several sources within the last year. This type electrode has been incorporated in a 9 ampere laboratory chlorate cell at Niagara Falls and has been operated for more than 100 days with very promising results. The results of these experimental data have been translated into the economics of a 40 ton per day sodium chlorate plant.

Technical Aspects of New Chlorate Cell Plant

Titanium does not function as an anode because it becomes covered with a very thin layer of electrically nonconducting oxide. This phenomenon becomes very useful when the titanium is plated with a very thin layer of platinum. Electrolysis takes place on the platinum. Should there be any discontinuities in the platinum film the exposed titanium becomes covered with this protective oxide film and further corrosion of the titanium is stopped. Such an electrode makes an excellent replacement for graphite because it is much more durable and takes up much less space.

Conventional chlorate cells to date have used graphite anodes. The upper operating temperature limit on these cells is 45°C. Above this temperature the corrosion of the graphite becomes excessive. Maximum allowable sodium chlorate concentration in this cell is 450 grams per liter. Concentrations in excess of this greatly reduce the life of the graphite. A typical chlorate plant flow sheet is given in Figure 1 with the corresponding flow rates given in Table I.

An improved method of operation of the chlorate cell with the platinized titanium electrodes has been under experimental study for several weeks. The chlorate cell is run at the boiling point of the electrolyte thereby evaporating off excess water and allowing the chlorate concentration to be 750 g/l or higher. Such operation eliminates the need for a salt evaporator and other salt handling equipment as well as a large steam generator. A process flow diagram of this process is given in Figure 2 with the flow quantities given in Table II.

The platinized titanium electrode cell can be operated at three times the current density of the Vickers-Krebs cell for the same amount of power consumption. Closer electrode spacing, higher operating temperatures and higher current efficiency makes this possible. Because of this, only one third the number of cells will be required. The compactness of the new cell along with the smaller number of cells will greatly reduce the size of the cell building.

[fol. 1025] Economics of New Chlorate Plant Location

Investment

The investment in the new type chlorate plant was calculated as follows: Vickers-Krebs states that the investment required for a conventional 40 ton per day chlorate plant is $3,197,000. They said that the cost of the cells is 20-30% of the investment or about $750,000. The costs for the platinized titanium cells is: Titanium, $219,000; Platinum, $200,000; Cell Boxes and contingency, $82,000; for a total of $510,000 or a saving in cell costs of $240,000. The Vickers-Krebs cell building is 60' x 160'. The building for the new cells would be about 40' x 90' or 6000 sq. ft. less. At $10/ft.^{2} this is a saving in building cost of $60,000. Elimi-

nating the need for a large steam plant and the salt evaporator saves an additional $100,000. Should the plant be located where it was necessary to handle rock salt as a raw material an additional investment of $25,000 would be required.

The net effect that the new cells could have on investment would be:

Cells	$ 240,000
Cell Bldg.	60,000
Steam Plant	25,000
Salt Evaporator	75,000
	$ 400,000
Less Salt Dissolving	—25,000
Total Saving	$ 375,000
Vickers-Krebs Plant Investment	$3,197,000
New Process Savings	375,000
New Plant Investment	$2,822,000

Production Cost

Labor, raw material, and repair costs are based on requirements supplied by Vickers-Krebs. Platinum replacement costs are taken as being equal to graphite replacement costs. Electricity costs are based on values given in Electrochemical Survey Report H-35.509 "Geographic Survey of Electricity Cost for Sodium Chlorate Plant" by A. J. Holmes.

[fol. 1026] Freight Equalization

Freight equalization is based on rail miles factored for the cost of freight shipment from Columbus, Miss. because Columbus is already shipping sodium chlorate. The rail miles were supplied by the Traffic Department at the Baltimore office. A table of these miles is given in Table III and the calculations for freight equalization are given in Table IV.

Plant Location

Three locations for a chlorate plant are considered in this report; Saltville, Va., McIntosh, Ala., and Chattanooga, Tenn. Chattanooga was picked because it is in the low-power cost TVA area, is relatively close to the chlorate market, and an OMCC Metal Division plant exists there.

It is believed that with a plant existing at Chattanooga, overhead and site development that would normally be incurred by a "grass roots" plant would be reduced or eliminated. Two cases were considered for Chattanooga. One where the plant would be located on the river so that salt might be shipped by barge for $8.70/ton and the other where the salt would be shipped by rail for $14.10/ton. The salt quotations were received from International Salt Co. for Avery Mine Run Rock Salt on 4/14/59.

Production cost estimates have been made for the above mentioned cases and are given in Tables V—VIII. Production costs are: Saltville, Va., $87.82/T $NaClO_3$; McIntosh, Ala., $89.29/T $NaClO_3$; Chattanooga, Tenn., on the river $76.72, not on the river $79.84. Production costs are reduced 9.4% over the conventional process.

Financial criteria are given in Table IX. Return on investment at the different locations are; Saltville, 16.4%; McIntosh, 15.9%; Chattanooga, on the river, 18.9%; Chattanooga, not on the river, 18.2%.

Conclusions

1. Using platinized titanium electrodes reduces the number of cells required in a chlorate plant by a factor of three.
2. Cells with platinized titanium electrodes can be operated at the boiling point of the electrolyte and at high chlorate concentrations thus eliminating the conventional salt evaporator and its auxilliaries.
3. A 40 ton per day sodium chlorate plant using platinized titanium electrodes reduces the investment $375,000 or 11.7%.
4. Chattanooga, Tenn. is a better location for a chlorate plant than Saltville, Va., or McIntosh, Ala. Production costs at Chattanooga are 10-15% lower.
5. The return on investment is 11-19% higher on a plant at Chattanooga than at Saltville or McIntosh.

[fol. 1027] Recommendations

1. It is recommended that Chattanooga, Tenn. be given more detailed consideration as a location for a sodium chlorate plant.

2. It is recommended that the platinized titanium electrode be tested in a prototype cell in order to better evaluate the method of operation outlined in this report.

[fol. 1028] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 34

[Extract from Memorandum—Plaintiff's C. L. Williamson Exhibit 1, September 6, 1961]

Confidential

April 23, 1959.

"Mr. S. de J. Osborne
The Staff
Mr. J. O. Logan
E. H. Bellows, 460 Park Avenue

Notes on Chemicals-Staff Meeting—Thursday, April 16, 1959

Present:

Staff	Chemicals Division
S. de J. Osborne ($2)	J. O. Logan
D. W. Drummond	R. D. Burt
W. C. Foster	W. G. E. Clark
G. Grand	W. A. King
M. L. Herzog	C. C. Hightower
R. Hopkinson	J. R. Koehn
W. F. Otterstrom	C. V. Mayne
E. H. Bellows	J. G. McMullen ($1)
J. R. Sanderford	M. Metziger
	J. F. Newell
	L. E. Russell
	N. O. Stein
	C. J. Thomas
	C. L. Williamston
	B. H. Wojcik"

[p. 2]

"3. Industrial Chemicals Expansion Program

"An agreement was reached in principle that the expansion of the Industrial Chemicals operations

was necessary and would be authorized. However, approval of each segment of the program would have to be conditioned upon the showing that the [fol. 1029] step in question was either sufficiently profitable on its own merits or a necessary protective measure to defend an already profitable market. In the light of this policy, the following decisions were taken:"

. . . . . .

[p. 3]

"f. The program for sodium chlorate at McIntosh is not sufficiently attractive to be approved at this time. There should be further examination on three points:

"(1) Technical adequacy
"(2) Is the proposed installation basically a protective measure?
"(3) Is a pay-out of more than six years the best that can be obtained?"

. . . . . .

[p. 3]

"EHB, E. H. Bellows."

[fol. 1030] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 37

Olin Mathieson Chemical Corporation

Date: May 1, 1959.

To: Mr. K. C. Frazier, at 20th Floor
From: O. J. Theobald, at Baltimore
Subject: Sodium Chlorate

Copy to: Dr. R. R. Shively
Mr. C. M. Norton
Mr. J. G. McMullen

The following is a review of our discussions on this subject and my reaction to the conclusions reached:

1. The only excuse for building another chlorate plant in the Southeast should be:
   a. Our desire to cash in on the excellent work done with our chlorine dioxide generator in the paper industry. We might cash in just as well by continuing to press for increased sales of chlorine and alkali.
   b. The absolute necessity for us to build *something* at Brunswick in order to maintain our South Atlantic facility.
   c. That the manufacture and sale of chlorate is at least as attractive or more profitable than production of chlorine and caustic.
2. While our contacts in the consuming industry are good and we could undoubtedly sell chlorate, we are faced with the danger of selling only at the expense of existing chlorine and alkali sales to the same industry. This is especially true, since the paper industry is so trade-relation conscious.

O. J. Theobald.

fmr

[fol. 1031] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 38

May 22, 1959.

cc. Dr. B. H. Wojcik,
Dr. W. C. Gardiner,
Mr. E. J. Mahler.

Discuss with E.B. & EJM

Ask about the amount of money they will.
$75,000 suggested by BHW—EJM.
E.B. does not agree.

Mr. B. H. Nicolaisen,
Assistant Manager, Research &
Development Department,
Olin Mathieson Chemical Corporation,
P.O. Box 480,
Niagara Falls, N.Y.

Dear Mr. Nicolaisen:

I have your letter of April 23rd, addressed to Mr. R. B. Spence, concerning an agreement for the mutual development with Vickers-Krebs and ourselves of a non-graphitic anode chlorate cell.

Essentially this agreement seems satisfactory, with the exception of article 5.01—"This Agreement shall be construed in accordance with the laws of the State of New York, New York, U.S.A.". We believe this would be better if it was construed according to the Rules of Conciliation and Arbitration of the International Chamber of Commerce, or such other rules as it may designate.

We also discussed on your visit here some preference that would be given to Vickers-Krebs to construct such a Plant for Olin Mathieson. Whether this should be part of the agreement or a separate communication is questionable.

Would you kindly send us a copy of the agreement for signature. We too are looking forward to this opportunity of working with you on this development.

Very truly yours, Vickers-Krebs Limited, R. K. Thoman, General Manager.

Received June 2, 1959, B. H. Wojcik.

[fol. 1032] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 39

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

U-2.501 Electrochemical Survey Report
General Subject: U-Chlorates

Name	Res. Mgr.	Super.	Work By	Rep. By	
B. H. Wojcik					Charge No.: 743-2011
B. H. Nicolaisen					
W. C. Gardiner	X	X			Report Dated: 7/15/59
A. J. Holmes			X	X	Report Typed: 7/20/59: vd
G. D. Byrkit					
H. A. Bruson					
J. B. Haglind					
S-T. H. Dexter					
S-R. C. Harshman					
S-C. W. MacMullen					
S-R. M. Thomas					
S-G. K. Weisse					
S-C. M. White					
S-B. H. Wojcik					

Summary of Sodium Chlorate Plant Studies

Approved: W. C. Gardiner. Signed: A. J. Holmes.

Date: July 20/59. Date: July 20, 1959.

Received July 22, 1959, B. H. Wojcik.

[fol. 1033] Table of Contents

	Page No.
Summary	3
Objective	4
Introduction	4
Technical Aspects of Conventional Chlorate Plant	4
Technical Aspects of New Chlorate Cell Plant	8
Unit Consumptions Comparison	9
Economics of Sodium Chlorate Production	9
Conclusions	12
Recommendations	12

Attachments:

Table 1	Streams through Conventional Chlorate Plant	13
Table 2	Streams through OMCC Process Chlorate Plant	14
Table 3	Rail Miles to Sodium Chlorate Consumers	15
Table 4	Freight Equalization Calculation	17
Table 5	Low Power Rate Locations in Southeastern U. S.	18
Table 6	Power Rates at OMCC Chemical Division's Plants	21
Table 7	Production Cost Estimate, Vickers-Krebs Plant at Saltville, Va.	22
Table 8	Production Cost Estimate, Vickers-Krebs Plant at McIntosh, Ala.	23
Table 9	Production Cost Estimate, Vickers-Krebs Plant at Chattanooga, Tenn.	24
Table 10	Production Cost Estimate, Pt-Ti Anode Cell Plant at Saltville, Va.	25
Table 11	Production Cost Estimate, Pt-Ti Anode Cell Plant at McIntosh, Ala.	26

		Page No.
Table 12	Production Cost Estimate, Pt-Ti Anode Cell Plant at Chattanooga, Tenn.	27
Table 13	Sodium Chlorate Production Cost Summary	28
Table 14	Financial Criteria Summary	29
Figure 1	Stream Flow Sheet, Conventional Sodium Chlorate	30
Figure 2	Stream Flow Sheet, OMCC Sodium Chlorate Process	31

[fol. 1034] Summary

A conventional sodium chlorate plant (Vickers-Krebs type) is compared with a plant proposed by OMCC's Industrial Chemicals Research Department, (platinum coated titanium cell electrodes) from a technical and an economic point of view. (Laboratory cells are on test and prototype is being designed.) The economics of locating each type plant at Saltville, Va., McIntosh, Ala., and Chattanooga, Tenn., is also studied. Chattanooga seems to be the best location primarily because of the lower cost TVA electric power. The new process also appears to be cheaper to build and operate than the conventional one.

The new process plant could be built at Chattanooga for a cost of $2,822,000 and would give a return of 18.1% on the investment. A conventional plant would cost $3,222,000 and would yield a 14.3% return.

[fol. 1035] Objective

This report was written so that all the recent surveys on sodium chlorate manufacture could be grouped together, be brought up to date, and be evaluated as a whole.

Introduction

Several surveys have been written recently on various types of sodium chlorate plants and the economic location of these plants. The two types of plants that are under consideration are the conventional plant as proposed by Vickers-Krebs, Ltd. of Montreal, Canada, and the new platinized titanium electrode cell plant as proposed by OMCC's Industrial Chemicals Research Department. A study of electric power rates has been made. All these reports are integrated and are contained in this survey.

Technical Aspects of Conventional Chlorate Plant

Vickers-Krebs Plant

A 40 ton per day sodium chlorate plant was described to W. C. Gardiner, R. C. Harshman and A. J. Holmes of Olin Mathieson by R. B. Spence and Dr. M. Zundel of Vickers-Krebs, Ltd. of Canada. Krebs has constructed 17 sodium

chlorate plants throughout the world since 1925 and is now building a plant in Finland utilizing a 30,000 ampere cell. A process flow diagram is given in Figure 1, with flow rates given in Table 1. A general description of the proposed plant is as follows:

Cells

One hundred monopolar cells rated at 30,000 amperes in two banks using perforated steel cathodes and impregnated graphite anodes.

[fol. 1036] Brine Purification

Facilities for brine treatment, filtration and storage (100 hrs. cell operation).

Brine Post-Treatment

Facilities for removing hydrogen, sludge, and hypochlorite from brine containing sodium chlorate.

Sodium Chloride Recovery

Facilities for the evaporative concentration of sodium chlorate and the continuous crystallization and removal of sodium chloride crystals.

Sodium Chlorate Recovery

A vacuum crystallizer, crystal growing type, with a capacity of 45 tons a day of sodium chlorate crystal. Crystals can be produced in different sizes. The equipment is designed for crystals between 60 mesh and 1/16" at rated capacity. The sodium chlorate is recovered on a continuous centrifuge and is dried in an indirect gas fired rotary dryer. The plant is completely instrumented.

Buildings

Building of structural steel frame and corrugated asbestos board siding. All ground floors sloped to sewers for easy washing. Natural ventilation is used in the cell and evaporator sections. Forced ventilation is used in the packing area and in the rectifier room. Space heaters are used to provide heat throughout the plant. The cell building is

one story 60′ x 160′ x 25′ high. At one end is an office, laboratory, and rectifier room. At the other end is the lockers and lavatory. The crystallizing building is three stories 70′ x 30′ x 65′ high. The drying and packaging building is two stories 70′ x 30′ x 25′ high.

Power Distribution

Power for all purposes will be supplied in one location at 13.8 KV.

Rectifier

Water cooled mechanical rectifiers having onput of 30,000 amperes continuous, 5% overload continuous, 375 volts maximum, and continuous automatic load regulation.

The utility requirements of the plant are as follows:

A.C. Power, 13.8 KV

Total Installed Power	12,500 KW
Normal continuous load	10,750 KW

[fol. 1037] Cooling Water

River Water—Reusable

Consumption at 60°F	2400 GPM
at 80°F	3500 GPM

Brine

Brine with the following analysis

NaCl	300 g/l
$SO_4^{=}$	3.2 - 3.7 g/l
Ca^{++}	0.7 - 1.5 g/l
Mg^{++}	0.1 g/l

Average Consumption 18,000 gal/day

Instantaneous output 50 GPM

Oil

Bunker C

Summer	3.7 tons/day
Winter	5.4 tons/day

Raw material consumptions per ton of $NaClO_3$ produced for the plant are listed as follows:

Power	A.C. Power for electrolysis measured on 13.8 KV inlet	KWH	6100
	A.C. Power for other utilities	KWH	200
Steam	at 150 PSIG for process	lbs.	2,750
	for heating	lbs.	250
Brine		gal.	460
HCl	22° Be	lbs.	50
NaOH	50%	lbs.	4
[fol. 1038]			
Soda Ash		lbs.	10
Barium Chloride		lbs.	32
Graphite (treated, dense quality)		lbs.	23
Fuel Consumption (Bunker C)		lbs.	185

The personnel requirements for the plant are as follows:

Operating Labor		Total Force
Cell Room	1 Operator/shift 7 day/week	4
Concentration, Crystallization, Drying	1 Operator/shift 7 day/week	4
Handling, Bagging Moving of Drums	3 man, daytime only 5 day/week	3
Brine Preparation	1 man, daytime only 5 day/week	1
Supervision		
Plant Engineer *	½ day	½
Chemist *	½ day	½
Instrument Repair *	1-2 hrs. day	1/5
Foreman	1 per shift 7 days/week	4
Maintenance		
Supervision *	1 Foreman, half-day	½
Cell Rebuilding, Routine Maintenance and Graphite Preparation	2 men, daytime only 5 day/week	2
[fol. 1039]		
Electrician	1 man, daytime only 5 day/week + standby for emergency	1
Mechanic	1 man, daytime only 5 day/week	1
Storekeeper *	1 man, half-day occupation	½

* Personnel to be shared with other production facilities.

Vickers-Krebs estimates that this plant would cost $3,197,000 for a turnkey job. This proposal includes the design, engineering, supply, erection and startup supervision for a nominal 40 tons sodium chlorate per day on a level site at an existing plant where brine is available. An estimated additional $25,000 would be required to provide solid feed salt facilities.

Technical Aspects of New Chlorate Cell Plant

Titanium does not function as an anode because it becomes covered with a very thin layer of electrically non-conducting oxide. This phenomenon becomes very useful when the titanium is plated with a very thin layer of platinum. Electrolysis takes place on the platinum. Should there be any discontinuities in the platinum film the exposed titanium becomes covered with this protective oxide film and further corrosion of the titanium is stopped. Such an electrode makes an excellent replacement for graphite because it is much more durable and takes up much less space.

Conventional chlorate cells to date have used graphite anodes. The upper operating temperature limit on these cells is 45°C. Above this temperature the corrosion of the graphite becomes excessive. Maximum allowable sodium chlorate concentration in this cell is 450 grams per liter. Concentrations in excess of this greatly reduce the life of the graphite.

An improved method of operation of the chlorate cell with the platinized titanium electrodes has been under experimental study for several weeks. The chlorate cell is run at the boiling point of the electrolyte thereby evaporating off excess water and allowing the chlorate concentration to be 750 g/l or higher. Such operation eliminates the need for a salt evaporator and other salt handling equipment as well as a large steam generator. A process flow diagram of this process is given in Figure 2 with the flow quantities given in Table 2.

The platinized titanium electrode cell can be operated at three times the current density of the Vickers-Krebs cell for the same amount of power consumption. Closer electrode spacing, higher operating temperatures and higher current

efficiency makes this possible. Because of this, only one third [fol. 1040] the number of cells will be required. The compactness of the new cell along with the smaller number of cells *with* greatly reduce the size of the cell building.

Unit Consumption Comparison

A comparison of the unit consumptions of the Vickers-Krebs and Pt-Ti anode chlorate plants is as follows:

Units per short ton $NaClO_3$

	Vickers-Krebs	Pt-Ti Cell Plant
Salt, Ton	.574	.574
Graphite, lb.	23	—
Platinum, Oz.	—	.11
HCl, 22°Bé, lb.	50	50
Cr_2O_7, lb.	2.7	2.7
Steam, lb.	3,000	none
Power (A.C. KWH)	200	200
Electrolytic (A.C. KWH)	6100	6100
Labor		
Operating, M.H.	1.78	1.78
Supervision, M.H.	.75	.75
Repair		
Labor, M.H.	.64	.64
Materials	.80	.80

Economics of Sodium Chlorate Production

The unit costs used in making a production cost estimate for the Vickers-Krebs plant were derived from the following sources:

The investment is that sum proposed by Vickers-Krebs and does not include any expense incurred by OMCC in site preparation or for rock salt handling.

[fol. 1041] Brine, HCl, Fuel Oil, Steam, Labor, Maintenance, Maintenance Overhead; Taxes and Indirect Overhead costs were given to W. C. Gardiner in a letter dated 2/12/57 from G. F. Comer. Labor rates in this estimate have been increased 5%.

Graphite costs were based on National Carbon prices for impregnated graphite. Quotations were received from International Salt Co. for barge shipment of salt to Chattanooga on 4/14/59.

Cr_2O_7, NaOH, Na_2CO_2 and $BaCl_2$ unit costs were taken from a current Oil, Paint and Drug Reporter.

Maintenance materials was figured as ½ Maintenance labor costs at Saltville.

Transportation charges were based on NaOH shipping charges of $5/T and 40 ton sodium chlorate tank cars.

Freight equalization is based on rail miles factored for the cost of freight shipment from Columbus, Miss. because Columbus is already shipping sodium chlorate. The rail miles were supplied by the Traffic Department at the Baltimore office. A table of these miles is given in Table 3, and calculations for freight equalization are given in Table 4.

The power requirements for a 40 ton per day sodium chlorate plant were given in a proposal received from Vickers-Krebs. The plant uses 6100 KWH/ton $NaClO_3$ for electrolytic power and 200 KWH/ton $NaClO_3$ for auxiliaries. The demand load for these power requirements is 10,500 KW. The plant would use 7,580,000 KWH per month.

The National Electric Rate Book has been obtained from the Federal Power Commission. This book gives the rate schedules throughout the U. S. for residential, commercial and industrial services for communities with populations over 2500. Minimum energy charges have been tabulated for all the utility companies in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia. Average costs per KWH has been calculated for all utility companies whose minimum energy charge was equal to or less than that for Saltville, Va.

These utilities and the average cost/KWH are given in Table 5. Power rates at OMCC Chemicals Division plants are given in Table 6. Rates for Saltville and McIntosh were taken directly from the existing power contracts.

The investment in the new type chlorate plant was calculated as follows:

Vickers-Krebs states that the investment required for a conventional 40 ton per day chlorine plant is $3,197,000. They said that the cost of the cells is 20-30% of the investment or about $750,000. The costs for the platinized titanium cells is: Titanium, $219,000; Platinum, $200,000; Cell Boxes and contingency, $82,000; for a total of $510,000 or a saving in cell costs of $240,000. The Vickers-Krebs cell building is [fol. 1042] 60′ x 160′. The building for the new cells would

be about 40′ x 90′ or 6000 sq. ft. less. At $10/ft.^{2} this is a saving in building cost of $60,000. Eliminating the need for a large steam plant and the salt evaporator saves an additional $100,000. Should the plant be located where it was necessary to handle rock salt as a raw material an additional investment of $25,000 would be required.

The net effect that the new cells could have on investment would be:

Cells	$ 240,000
Cell Bldg.	60,000
Steam Plant	25,000
Salt Evaporator	75,000
	$ 400,000
Less Salt Dissolving	—25,000
Total Saving	$ 375,000
Vickers-Krebs Plant Investment	$3,197,000
New Process Savings	375,000
New Plant Investment	$2,822,000

Production Cost

Labor, raw material, and repair costs are based on requirements supplied by Vickers-Krebs. Platinum replacement costs are taken as being equal to graphite replacement costs.

Chlorate Plant Economics

Production cost estimates have been made from the above mentioned information on conventional and new type chlorate plants located at Saltville, Va., McIntosh, Ala., and Chattaooga, Tenn. These production costs are given in Tables 7 through 12 and summarized in Table 13. Financial criteria for these plants are summarized in Table 14.

The results of this study show that Chattanooga, Tenn. is the best location for a chlorate plant and that the new type anode plant is less expensive to build and operate.

[fol. 1043] Conclusions

1. The Vickers-Krebs plant seems to be the orthodox chlorate plant as is presently used in this country.

2. Investment requirements for a 40 T/day $NaClO_3$ plant of the Vickers-Krebs type is $3,197,000 on a prepared site.

3. Production costs per ton $NaClO_3$ plants at the following locations are: Saltville, Va., $93.80; McIntosh, Ala., $95.65; and Chattanooga, Tenn., $86.99.

4. Return on Investment of a Vickers-Krebs type chlorate plant at the various locations are: Saltville, Va., 12.9%; McIntosh, Ala., 12.6%; and Chattanooga, Tenn., 14.3%.

5. Using platinum coated titanium electrodes reduces the number of cells required in a chlorate plant by a factor of three.

6. Cells with platinum coated titanium electrodes can be operated at the boiling point of the electrolyte and at high chlorate concentrations thus eliminating the conventional salt evaporator and its auxiliaries..

7. A 40 ton per day sodium chlorate plant using platinum coated titanium electrodes is estimated to reduce the investment $375,000 or 11.7%.

8. Chattanooga, Tenn. is a better location for a chlorate plant than Saltville, Va., or McIntosh, Ala. Production costs at Chattanooga are 9-11% lower.

9. The return on investment is 12% higher on a plant at Chattanooga then at Saltville or McIntosh.

Recommendations

1. It is recommended that Chattanooga, Tenn. be given first consideration in the location of a sodium chlorate plant.

2. It is recommended that the platinum coated titanium electrode be tested in several cell designs on a protype scale in order to better evaluate the method of operation as outlined in this report.

[fol. 1044] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 40

Olin Mathieson Chemical Corporation

To: Mr. W. A. King, at Baltimore Date: July 27, 1959.
From: K. C. Frazier, at Baltimore
Subject: Sodium Chlorate Plant

Of the two locations compared, namely, McIntosh, Alabama and Chattanooga, Tennessee, for a 15,000 tons per year sodium chlorate plant, it would seem from a purely sales viewpoint that the McIntosh, Alabama site would be preferable for the following reasons:

1. McIntosh would have a low freight rate for customers using 17,350 tons per year. Chattanooga would be a low equalization point for customers using approximately 11,000 tons per year.

It is our belief we could probably sell the output of a 15,000 tons per year chlorate plant, but before making a definite commitment we would like to have a closer prospect by prospect survey made to determine exactly what the situation is.

It should be realized that the paper industry, to whom this product would be sold, have strong reciprocal relationships. To the same customers to whom we would try to sell sodium chlorate we are at present selling the following:

Caustic Soda	$2,437,468
Soda Ash	491,105
Chlorine	3,057,736
Total	$5,986,309 per year

K. C. Frazier.

Received July 27, 1959, W. A. K.

[fol. 1045] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 41

Mr. J. O. Logan, Baltimore
W. A. King, Baltimore

July 28, 1959.

Sodium Chlorate Plant

We attach memos from Frazier and Shively, each of whom we requested to review independently the sodium chlorate market studies for the Southeast. The writer has discussed the matter with both these gentlemen, as well as with McMullen and Theobald, so these statements are not unilateral.

Sales feels that 15,000 tons of sodium chlorate can be moved yearly from either point so long as some other producer does not start up in the region. Since McIntosh would provide the low f.o.b. point for some 17-18,000 tons of presently known tonnage, as compared to approximately 11,000 tons for Chattanooga, the McIntosh location would be best from a strictly sales viewpoint.

Shively has pointed out that the large differential in power costs will, of course, be a factor which must be weighed against McIntosh by Operations.

Frazier, McMullen and Theobald, as well as the writer, believe that we should review the matter with the potential users prior to a definite commitment to proceed with the plant. We believe this can be done within a period of two weeks but we prefer not to renew customer contacts on the subject unless there is a reasonably good chance that a plant will be forthcoming if the review seems favorable to the project. In such a review, we should attempt to learn to what extent we might be hurt by the loss of sales of other products to the paper industry.

W. A. King.

cc: 3 letters to OJT, KCF, JGMcM, RRS.

[fol. 1046] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 42

Olin Mathieson Chemical Corporation

Date: August 7, 1959.

To: Mr. J. G. Chalfant at Baltimore
From: W. W. Northgraves at Baltimore

Copy to: W. A. King
J. O. Logan
N. C. Schultze
B. H. Wojcik

Subject: Sodium Chlorate Tank Cars Patent Application N. P. 1719

The subject patent application, which was filed in May of this year, relates to a modified tank car for transporting sodium chlorate and the method of unloading same. This memo is written to suggest a way of making some money out of this patent application which, in my opinion, has a good chance of being allowed.

I have only one copy of the patent application available. This is being circulated to those receiving copies of this memorandum. Present rail and road transport for bulk sodium chlorate cannot be unloaded without some difficulty and without considerable hazard to the person performing the unloading operation. My proposal, if it works, will resolve most of the objections. If we go into the chlorate business in the near future, I believe that the improvement in the unloading technique as described in the application could be used to advantage in our sales promotion. If we do not plan to produce chlorate in the near future, I believe that it may be possible to sell or license this patent provided that we can stimulate the users of bulk chlorate to demand tank cars of the type described.

It will first be necessary to demonstrate the practicability of the proposal. This might be done by modifying our chlorate car which shuttles back and forth between Hooker and our C2 plant at Niagara Falls. The modification re-

quired involves primarily a simple and inexpensive piping arrangement inside the car.

If the unloading proceeds as successfully as I expect it will (which of course will benefit our operators at Niagara) we might proceed in one of several ways.

We might approach Pennsalt with our data and experience and offer to license the operation to them on some yet to be determined basis. Pennsalt has already been informed of the details of the proposed modification to the tank cars but has elected to proceed with the converted hopper cars which they are now offering to the trade. However, they had expressed an opinion on our proposal in the form of a letter from Brian L. Shera which says in part, "This looks good and it might be the ultimate process for handling chlorates."

If Pennsalt remains uninterested in our development we might contact Buckeye Cellulose. They own the tank cars in which their chlorate is shipped. I think there is an excellent chance that they would be glad to avail themselves of the improved unloading procedure which we might offer to them without cost in order to establish the use of our invention in a pulp mill. When this is done, I believe the demand for this modified car from the rest of the mills using chlorate [fol. 1047] may snowball rapidly. As mentioned above, the necessary preliminary to any attempt to sell or license this invention to the chlorate industry is the actual trial of the matter at Niagara Falls.

An early expression of opinion from those concerned would be appreciated.

W. W. Northgraves.

Received August 7, 1959, W. A. King.

[fol. 1048] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 43

8/12/59.

To: Mr. W. A. King at Baltimore
From: J. O. Logan at Baltimore

Copy To: J. G. Chalfant,
W. W. Northgraves,
N. C. Schultze,
B. H. Wojcik.

Subject: Sodium Chlorate Tank Cars, Patent Application N. P. 1719

Re Northgraves' memo of August 7th to Chalfant on the subject. Since we have very serious considerations of chlorate production underway, it is definitely in order not to consider or talk to anyone concerning the sale or license of this patent at this time.

When our decision is reached on chlorate production, we can then define a course of action on the tank car.

J. O. Logan.

Received August 13, 1959, B. H. Wojcik.

[fol. 1049] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 44

Extract from the Minutes of Division Management Meeting Held on August 17, 1959

Present: J. O. Logan, J. F. Newell, O. J. Theobald, Jr., C. V. Mayne, R. Smego, W. A. King, C. L. Williamson

Capital Expansion Program

Williamson indicated that for capital purposes, we must review our expansion program. Further, that in discussion with Mr. Block, the items were indicated which are to appear on our 1960 budget. One of the items was the Chlorate

Plant, and Sales expressed the opinion that they should not conduct another market survey on Chlorate unless we are prepared to state that we are going to build a plant. In this connection, it is felt that advice from Management is necessary. In the meantime, Mr. Smego will review freight picture of the Chattanooga vs. McIntosh locations. Mr. Logan indicated he would like to see a complete wrap-up of the Chlorate picture, assuming the plant at Chattanooga with the economics based on a Chlorine Plant at that location as well. In other words, the figures are to be put together without survey on the basis that a CAR would be submitted.

[fol. 1050] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' EXHIBIT 45

August 18, 1959.

E. Block, Baltimore
B. H. Wojcik, Baltimore

J. O. Logan,
E. J. Mahler.

Vickers Krebs Sodium Chlorate Cell Development Agreement

In accordance with your request, a call was made at Canadian Vickers in Montreal, August 14, regarding changes in the proposed Sodium Chlorate Cell Development Agreement. Representing Canadian Vickers at this meeting were R. Thoman, Vice President and General Manager, and R. Spence, Sales Manager.

The proposed changes involving a top limit of a $100,000 out-of-pocket expenditure by O.M.C.C. and an equal out-of-pocket expense by Vickers Krebs were discussed initially. In addition, it was stated that both parties would have an equal voice in the setting up of a program as well as the evaluation of the data. Spence objected to the proposition on the basis that Vickers Krebs would not, under such terms, receive any credit for its cell "know-how".

Following a discussion of the pro's and con's of the new proposal, including a possible tax penalty against Vickers

Krebs, Thoman read portions of a letter from Krebs in reply to our initial proposition. Krebs indicated in this letter that he has been working on platinized titanium electrodes for quite some time and that currently he has a project going on at the University of Stockholm directed toward the development of a chlorate cell which may be used with the new anodes. He further stated that the conventional chlorate cell could not be used with platinum titanium anodes and urged that an agreement be signed with O.M.C.C.

When it developed that Vickers Krebs had little if anything to contribute to the cell development, both Spence and Thoman took a more favorable approach to a joint venture under our terms. Thoman promised to write to Krebs about our latest proposal, requesting that immediate consideration be given to a joint program. As soon as Thoman hears from Krebs, hopefully within the next two weeks, he will communicate with me regarding their decision.

Original signed by B. H. Wojcik.

BHW:feg

[fol. 1051] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 46

Extract from the Minutes of Division Management Meeting Held on August 31, 1959

Present: J. F. Newell, C. C. Hightower, R. C. Burroughs, K. C. Frazier, W. A. King, C. L. Williamson, Capital Expansion Program.

Mr. Hightower reported that based on research report, it appeared that the proposed 40 ton per day Sodium Chlorate Plant located at Chattanooga would approximate a 4.8 year payout based on approximately $3.2 million investment. This investment figure includes using the Vickers Krebs cells. Using our cells, the capital investment appears to approximate $2.8 million with a 4.1 year payout. In either case, the picture will be better with the inclusion of a Chlorine Plant. Economics favor Chattanooga primarily due to TVA power availability.

[fol. 1052] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 48

Vickers Krebs
Limited

4970 Notre Dame Street East, Montreal, Canada,
Telephone: Clairval 6-2651

September 4th, 1959.

Dr. B. H. Wojcik,
Manager, Research and Development,
Chemicals Division,
Olin Mathieson Chemical Corporation,
10 Light Street,
Baltimore, Md.

Dear Dr. Wojcik:

With respect to the various discussions and correspondence which we have had with your Company concerning a possible agreement on the development of a sodium chlorate electrolytic cell utilizing non-graphitic anodes, we refer particularly to your visit to our offices on August 14th, 1959.

As we advised you yesterday during our telephone conversation, this company is not prepared to support a joint development project with any cash disbursements other than that which would cover our own personal expenses on the matter.

With this basic policy as a foundation, we still feel that mutual collaboration can be effected but, prior to proceeding to formulate an agreement, discussions will be required regarding specific points, some of which are as follows:

1. Definition of the scope of the agreement.

[fol. 1053] 2. Contribution and responsibility of respective parties.

3. The physical extent of the overall project in terms of equipment required.

4. The length of operating time and the degree of supervision.

5. Interpretation of and conclusion from operating results.

6. Magnitude and share of future royalties.
7. Application and prosecution of patents.
8. Conduct of development work after completion of piloting but prior to termination of agreement.
9. Contract for construction of future Olin Mathieson plant.

We consider it advisable at this stage for you to give some thought to each of these issues, and we shall do likewise here.

In the near future we suggest an additional meeting be held to determine whether an agreement can be reached which will be mutually acceptable and still compatible with our respective attitudes with regard to these major points.

Yours very truly, Vickers Krebs Limited, R. K. Thoman, General Manager.

/as

Received September 8, 1959, B. H. Wojcik

[fol. 1054] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 49

October 5, 1959.

Mr. R. K. Thoman, General Manager
Vickers Krebs Limited
4970 Notre Dame Street East
Montreal, Canada

Dear Mr. Thoman:

Pursuant to our continued interest in the possibility of producing sodium chlorate, we would like to inquire whether there is any basis on which Vickers Krebs would consult with us, for a fee, in building a single standard chlorate cell.

We indeed appreciate the kindness shown in the past and hope that you will be able to favor us in our present request.

Your very truly, B. H. Wojcik, Director of Research and Development for Industrial Chemicals.

BHW:feg

[fol. 1055] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 50

Vickers Krebs
Limited

4970 Notre Dame Street East, Montreal, Canada,
Telephone: Clairval 6-2651

October 26th, 1959.

Dr. B. H. Wojcik,

Director of Research and Development,
Olin Mathieson Chemical Corporation,
Chemicals Division,
Mathieson Building,
Baltimore 3, Maryland.

Dear Dr. Wojcik,

In reply to your letter of October 5th, 1959, we would state that there is a basis on which we would consult with you in building a single standard chlorate cell.

We must reiterate that our main interest lies in the ultimate engineering and construction of the sodium chlorate plant which you might subsequently build. It is only through this avenue that we deem it possible to recover adequate compensation for our technical knowledge and experience, which in fact is our major "stock in trade".

With regard to your proposed pilot plant, we would be prepared to consult with you for a nominal fee plus payment of our direct costs, the magnitude of the fee being dependent on the final scope of the work. However, we would need some adequate assurance that when you finally proceed with a manufacturing plant of commercial proportions, Vickers Krebs Limited would be the turnkey contractor. If this is agreeable to you in principle, we are certain that the details can be worked out to our mutual satisfaction.

Kind personal regards.
All other things being equal, we will give.

Yours very truly, For: Vickers Krebs Limited, R. K. Thoman, General Manager.

/as

[fol. 1056] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 51

November 9, 1959.

Mr. R. K. Thoman,
General Manager
Vickers Krebs Limited
4970 Notre Dame Street East
Montreal, Canada

Dear Mr. Thoman:

We, indeed, appreciate your kind letter of October 26 relative to our mutual interest in a production facility for sodium chlorate.

In general, we are in agreement with your views on a cooperative program pertaining to the development of a chlorate cell utilizing platinum-titanium anodes. This we would like to discuss with you and put into affect as soon as possible.

With regard to assurance from Olin Mathieson Chemical Corporation that Vickers Krebs would be the turnkey contractor when we decide to build a chlorate plant; we, of course, would give your company a preferred position providing everything is equal to what will be available from others.

I would very much like to see us start on the development of a new sodium chlorate cell. I feel rather strangely about the benefits which our companies will derive from a joint study. We will be pleased to meet with you at your convenience to discuss the details of a joint program.

Sincerely, B. H. Wojcik, Director of Research and Development for Industrial Chemicals.

BHW:AM
CC: Mr. E. Block

[fol. 1057] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 53

Olin Mathieson Chemical Corporation

Date: November 25, 1959.

Copies to: Mr. E. J. Mahler,
Dr. W. C. Gardiner.

To: Dr. B. H. Wojcik (2) at Baltimore
From: B. H. Nicolaisen at Niagara Falls
Subject: Meeting With Vickers-Krebs November 24, 1959

Present for Vickers-Krebs—R. Spence
Present for OMCC — B. H. Wojcik
W. C. Gardiner
B. H. Nicolaisen

This meeting was held at 460 Park Avenue. It was hoped that Vickers-Krebs would finally state the conditions under which they would serve in a consulting capacity for OMCC. These terms were not stated in a specific manner.

Vickers-Krebs is still interested in collaborating with OMCC on terms similar to those in the proposed agreement submitted to them. They feel that this is the only way in which they can contribute satisfactorily to the development of the process as a whole or to any phase of it. They are standing by their original position as regards cost sharing on the project. They will bear the costs incurred by their people working on the project. They expect OMCC to do the same. Spence estimated their costs would be about $25,000 on this basis.

There is one significant change to which Vickers-Krebs would agree on the cost-sharing problem. If Vickers-Krebs builds a plant for anyone using the new process, the total costs for the work done under the agreement would be pooled, and Vickers-Krebs would then reimburse Olin Mathieson in sufficient amount so that each of our costs would be the same. However, if OMCC builds or has built a chlorate plant using the new process by anyone other than Vickers-Krebs we would pay Vickers-Krebs for their portion of the costs of the development program.

Vickers-Krebs' reasoning behind this is that they cannot afford to contribute heavily to the development program until they have built a plant under the new process. They also feel that there should be some penalty to OMCC if Vickers-Krebs passes on know-how but OMCC does not reward Vickers-Krebs by award of a plant construction contract.

In consideration of the above, Vickers-Krebs will assign all patents to OMCC. OMCC will bear all costs related to patent activities. OMCC will agree to license Vickers-Krebs' customers for new process plants to operate under these patents. OMCC would collect all royalties, size of which would be agreed upon with Vickers-Krebs.

In connection with the conditions for a consulting arrangement, Spence said that Vickers-Krebs would propose to do this work on a cost plus nominal fee basis. The size of the fee has not been resolved by them but would not be discouragingly large. However, in addition to the foregoing, they would also require that OMCC pay them a supple- [fol. 1058] mental fee in the event OMCC were to build or to have built a chlorate plant by anyone other than Vickers-Krebs. This penalty fee has not been fixed either. Apparently there is divergent opinion in the Vickers-Krebs organization on exactly how large it should be. Spence says that he thinks it would be prohibitively large from our viewpoint no matter which Vickers-Krebs faction prevails.

Summary:

It is quite apparent that Vickers-Krebs wishes to proceed on a collaborative basis but is adamant to any proposal which would necessitate their spending money outside of their own organizational routine until after they had realized a profit from the development.

B. H. Nicolaisen.

BHN:HM

Received November 30, 1959, B. H. Wojcik.

[fol. 1059] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 54

E Block—J. O. Logan

Vickers Krebs
Limited

4970 Notre Dame Street East, Montreal, Canada,
Telephone: Clairval 6-2651

January 14th, 1960.

Any further action on the draft of the V.K. agreement.

Dr. B. H. Wojcik,

Director of Research and Development for Industrial Chemicals,
Chemicals Division,
Olin Mathieson Chemical Corporation,
Mathieson Building,
Baltimore 3, Md.

Dear Bruno,

You may recall that, during the post-Christmas week, we discussed on the telephone the latest developments concerning our discussions on an agreement to collaborate on a sodium chlorate electrolytic cell. In fact, this was a follow-up to the discussions held in your Offices in New York on November 24th and Niagara Falls November 30th, 1959.

You had advised me that, in principle, your Management had agreed to the foundations which were laid in our New York meeting and that we should expect to receive, at an early date, the preliminary draft of a new agreement based on all our latest talks.

As you can see, two weeks have gone by and we are now becoming concerned as to the current status of this negotiation. We are anxious to receive word from you as to when we might expect to receive a draft agreement embodying the latest points, conclude same, and commence execution of the joint-development program.

In view of the recent publicity attached to platinum-plated titanium electrodes for use in the electrolysis of sodium chlo-

ride brine, we consider that much harm can be experienced in delaying the start of our joint venture, inasmuch as it would appear from our recent talks and correspondence that our two Companies have agreed in principle to proceed together in this field.

[fol. 1060] Our Company would appreciate some indication from you by return correspondence as to when we might expect our joint plans to crystallize.

With kind personal regards.

Your very truly, For: Vickers Krebs Limited, R. B. Spence, General Sales Manager.

/as

Private Wire

Olin Mathieson

B H Wojcik

0

AXXXXXXX-040 Icex Niag 9 12-30-59 100

Bob Spence Called Today 12-30 Concerning the Status of Proposed Agreement With Them.

B. H. Nicolaisen.

Received E. B., January 18, 1960.

Received January 18, 1960, B. H. Wojcik.

[fol. 1061] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 56

May 26, 1960.

Olin Mathieson Chemical Corporation
Industrial Chemicals Division

Research and Development Department

U-2502 Electrochemical Survey Report
General Subject: U-Chlorates

Name	Res. Mgr.	Super.	Work By	Report By
J. E. Baker				
H. A. Bruson				
G. D. Byrkit				
W. C. Gardiner	X			
J. B. Haglind				
C. C. Hightower				
A. J. Holmes			X	X
M. Metziger				
J. R. Newberry		X		
B. H. Nicolaisen				
B. H. Wojcik Mgr. R & D				
J. L. Wood				
S-B. H. Wojcik				
S-C. W. MacMullen				
S-C. M. White				
S-R. M. Thomas				
S-R. C. Harshman				
S-G. K. Weisse				
S-A. W. Sawyer				

Charge No.: 743-2011

Report Dated: 4/27/60

Report Typed: 5/18/60:vd

Sodium Chlorate Manufacture for Sodium Chlorite Plant at Niagara Falls, New York

Approved: W. C. Gardiner. Signed: A. J. Holmes.

Date: 5/20/60. Date: 5/23/60.

[fol. 1062] Table of Contents

	Page
Summary	3
Objective	4
Introduction	4
Technical Aspects of Chlorate Plant	4
Economic Aspects of Chlorate Plant	5
Conclusions	7
Recommendations	7
Attachments	8

[fol. 1063] Summary

A study has been made to evaluate the proposal to attach chlorate cells to the new Niagara chlorine plant to produce the sodium chlorate required by the sodium chlorite plant. At present chlorate consumption levels, nine 33,000 ampere platinized titanium anode chlorate cells would be required and would use 11 volts from the chlorine plant electrolytic line. Proposed increased capacity would use 15 cells and 19 volts. Sodium chlorate recovery from cell liquor would be relatively simple. The process is economically attractive. Investments vary from $96,400 to $147,000 with returns of 64% and 85% respectively depending on plant capacity. This project would also provide an excellent proving ground for the platinized titanium anode chlorate cell.

[fol. 1064] Objective

A proposal has been made to add enough sodium chlorate producing capacity to the new Niagara Falls chlorine plant to fill the chlorate requirements of the sodium chlorite plant. This report gives the results of a preliminary study of the technical and economic questions associated with the proposal.

Introduction

The soduim chlorite plant purchases about 120 tons of sodium chlorate per month from Hooker Chemical Co. and has plans to expand this consumption to 220 tons a month.

The Electrochemical Development Department has developed an electrolytic process for making sodium chlorate. This process eliminates the need for an expensive evaporator and solid sodium chloride handling facility as is required in the conventional process. In essence the electrolytic cell functions as an evaporator. The proposal assumes that sufficient voltage will be available after the new Niagara electrolytic chlorine plant is started, to operate the chlorate cells.

Technical Aspects of Chlorate Plant

A tentative design has been made for a 30,000 ampere chlorate cell. Only slight modification would be necessary

to make this cell operate at 33,000 amperes. Three of these cells would be used in parallel with the E-11 mercury cells. Three banks of cells, or 9 cells, are required to produce 120 tons of chlorate per month. Five banks would be required to produce 220 tons per month. The nine cells would require floor space approximately 10 ft. x 15 ft.

The chlorate plant would take chlorine plant purified brine and treat it with barium chloride to remove the sulfate present. The flow diagram is given in Figure 1.

The chlorate cell effluent is cooled in a small jacketed vessel with cooling water. Sodium chlorate crystallizes out of this solution. The slurry is then sent to a small filter where the liquid is separated from the chlorate crystals. The chlorate crystals are then dissolved to make a concentrated solution which is then pumped to the sodium chlorite plant. The cell liquor that was separated from the solid sodium chlorate is mixed with purified brine for return to the cells.

The cells operate at the boiling point of the electrolyte and the water introduced with the brine is evaporated by the heat generated by the cell.

[fol. 1065] The chlorate cell operates at a maximum voltage of 3.7 volts and for the purposes of this report it is assumed that the required eleven volts necessary to operate the chlorate cells will be available from the chlorine plant rectifiers. Eighteen volts would have to be available to operate five banks of cells to obtain 220 tons sodium chlorate per month.

A 140 ampere cell operating under the above mentioned conditions has been run in the laboratory for the past several months to prove the feasibility of this type operation.

Economic Aspects of Chlorate Plant

Investment:

Quotations have been received on the chlorate cell covers and on the cell bodies. In quantities of 100 these polyester covers cost $13,000 and the cell bodies cost $61,000. Quotations on the titanium anode assembly have not been received to date so the cost for this assembly is based on the cost of the quantity of titanium involved plus 20% of this cost for

fabrication. The calculated cost for 100 anode assemblies is $310,000. The total unit cell cost is $3,840 in lots of 100. Twenty percent has been added to this cost for lots of nine to give a cell cost of $4,610 not including platinum.

Platinum worth $3,880 ($83/troy oz.) is applied to the anodes in each cell. This amount of platinum should last almost two years. This brings the total unit cell cost to $8,490. $20,000 is the estimated cost of the auxillary equipment.

Cost estimates are made assuming no charge for rectifiers in one case and proportionate change in the other. This proportioning of rectifier cost is based on the ratio of kiiiowatt consumption required for the chlorate cells vs. the mercury cells. It is assumed that the original cost of the chlorine plant rectifier is $1,500,000. At 120 T/Mo. $NaClO_3$ this is $69,000 and $115,000 at 220 T/Mo. $NaClO_3$.

Total chlorate plant cost is $96,400 for 120 T/Mo.$NaClO_3$ without rectifier and $165,400 including rectifiers. For 220 T/Mo. $NaClO_3$ the investment is $147,000 and $262,000 excluding and including rectifiers respectively.

Raw Materials:

Salt	$4.62 per ton as purified brine from chlorine plant. 0.574 ton salt per ton $NaClO_3$ produced based on Vickers-Krebs estimates.
HCl	$0.0175/lb. 22° B'e Acid is OPD price. 30 lb./ton $NaClO_3$ is Vickers-Krebs estimate.
[fol. 1066]	$BaCl_2$ $0.09/lb. OPD price. 43 lb./Ton $NaClO_3$ based on amount required to precipitate all sulfate in purified brine.
CrO_3	$0.30/lb. OPD price. 2.7 lb./Ton $NaClO_3$ based on Vickers-Krebs estimate.
Platinum	$83/troy ounce OPD price of metal. 0.17 troy oz./ton $NaClO_3$ based on minimum platinum consumption measured by electrode weight loss in laboratory 140 ampere chlorate cell.

Utilities:

Electrolytic	$0.005 /KWH D.C. Unit consumption is 5100 KWH/T $NaClO_3$ based on 3.7 volts per cell and 83% current efficiency. There are no other utility charges used because they are so small.

Labor:

Operating	$2.40/hr., one man on days to check operation of plant.
Monthly	$3.40/hr. cell room or chlorite foreman spending 2 hours/day on chlorate manufacture.

Repair and Maintenance:

Labor	$2.45/hr. same maintenance per ton $NaClO_3$ as estimated by Vickers-Krebs.
Overhead	30% of repair labor.

Supplies and Miscellaneous:

$0.50/T $NaClO_3$ includes laboratory analysis.

Overhead:

Direct	Figured as monthly labor.
Indirect	100% operating labor plus 1.5% of investment per year.
Taxes and Insurance	1.25% of investment plus 9% of operation and repair labor.
Depreciation	6.67% of investment per year.

[fol. 1067] Gross Sales:

OMCC presently buys sodium chlorate from Hooker Chemical Co. for $161.80/Ton in OMCC tank cars. Tank car lease is estimated at $3.50 per ton giving a total cost of $165.30/Ton $NaClO_3$. Sales volume is 1440 and 2650 tons $NaClO_3$ per year.

Production cost estimates are worked out in Tables I-IV and Financial Criteria are given in Tables V-IX. A summary of these estimates is as follows:

	Production Cost $/T $NaClO_3$	Return on Investment	Pay-Out Period
120 T $NaClO_3$/Mo. without rectifier cost	73.34	64%	1.4 years
120 T $NaClO_3$/Mo. with rectifier cost	77.83	36.5%	2.3 years
220 T $NaClO_3$/Mo. without rectifier cost	67.58	85%	1.1 years
220 T $NaClO_3$/Mo. with rectifier cost	71.64	45%	1.9 years

Conclusions

The attachment of a chlorate plant to the Niagara chlorine plant is economically attractive. A 120 tons per month chlorate plant would provide the information needed to build a full scale chlorate plant as well as supply chlorate to the chlorite plant at a considerable savings.

Recommendations

1. It is recommended that a 4,000 ampere cell be made and tested with the rectifiers that are presently available at Niagara to determine the feasibility of the present chlorate cell design.

2. Alter the present 30,000 ampere cell design if needed as a result of the 4,000 ampere cell tests to obtain a working 33,000 ampere cell.

3. Begin detail engineering for the installation of 9 or 15 33,000 ampere chlorate cells and auxilliary equipment in the Niagara chlorine plant.

[fol. 1068] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 57

Chemicals Division
Capital Requirements
1960-1964—Incl.
(Ex. Organics)

[Extracts]

Exhibit
Plf. Osborne 2 for ident.
J. Birkhahn, Csr, 10/4/61

July 1960

[fol. 1069]

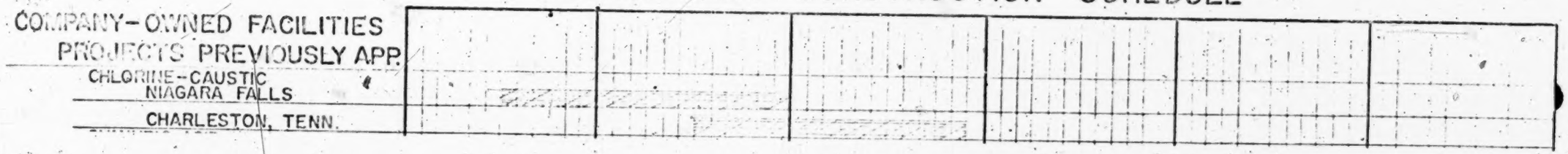
Chemicals Division

Economic Summary for Production Facilities
($000 Omitted)

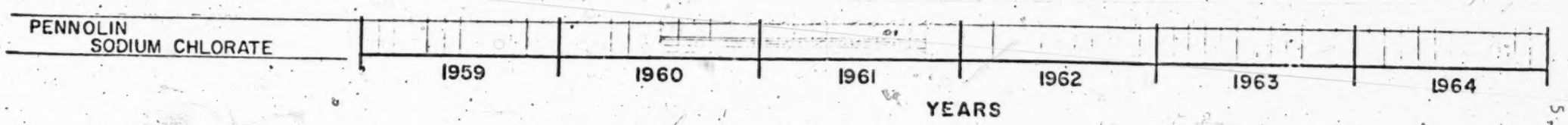
	Year of Completion	Net Outlay	Gross Investment	Net Sales	Net Profit	% of Net Sales	% Return on Gross Investment	Cash Profit	Cash [3] Recovery Period
Company-Owned Facilities									
Projects Previously Approved									
Chlorine-Caustic-									
Niagara Falls	1960	9,146	6,220	2,860	1,020	35.7	16.4	1,380	8.1
Charleston, Tenn.	1961	[1]1,575	11,575	6,208	1,230	19.8	10.6	1,807	7.8
New Projects									
Total Company-Owned Facilities									
Joint Ventures									
Penn-Olin-Sodium-Chlorate									
Total Joint Ventures	1961	7,254	7,179	3,945	669	17.0	9.3	1,044	8.9

CHEMICALS DIVISION

PLANT ENGINEERING AND CONSTRUCTION SCHEDULE



JOINT VENTURES



[fol. 1071] Chemicals Division—Industrial

Explanation of Capital Requirements

Caustic Chlorine—Niagara Falls

C.A.R. 172-052-4224 was approved in 1959 for the expansion and modernization of the Niagara Falls Chlorine plant. The expanded capacity will provide a total of 184 tons of chlorine and 212 tons per day of caustic. Construction will be completed during November, 1960. It is expected that the Plant will be in full operation by January, 1961, with added output committed.

The total expenditures for the modernization of the 25 cycle electric facilities and construction of the 184 ton per day electrolytic chlorine plant will not exceed the approved amount of $10,294,000.

Caustic Chlorine—Charleston, Tennessee

The continued availability of purchased chlorine and caustic from present outside sources is uncertain due to renegotiation of the Huntsville Leasehold at end of 1961 and efforts of Kaiser Aluminum and Chemical to develop joint ventures or captive uses for Gramercy chlorine concurrent with expiration of our present contract at the end of 1962. All of this purchased tonnage is moved at little or no profit. We have a letter of intent from Bowaters Southern Corporation covering sale of 24,000 TPA chlorine and 18,000 TPA caustic per year for 5 years commencing January 1, 1962 contingent upon construction of the Charleston facility. Letter of intent to be superseded by 5 year contract by August 1, 1960. These requirements together with increased sales in the Tennessee River area attributable to the Charleston plant result in an immediate and urgent need for new production facilities.

It is proposed to construct at a cost of $10,755,000, a new production facility with a capacity of 140 tons of chlorine and 161 tons per day of caustic, on land to be purchased near the Bowaters Plant at Charleston, Tennessee. The proposed unit would utilize the Mathieson developed E 11-F cell. The salt required for the operation of this facility would be delivered via barge from Louisiana. Electric power would

be obtained from the TVA system. Facilities would be provided for shipping the products by barge, rail and truck. Immediate approval of this project would allow initial operations by late 1961.

[fol. 1072] Sodium Chlorate—Penn-Olin

This project covers the construction of facilities to produce 25,000 tons per year of sodium chlorate. C.A.R. 172-001-377A and B were recently submitted for approval accompanied by complete supporting data. The figures contained in this report are based on C.A.R. 172-001-377B which we believe are realistic and attainable.

[fol. 1073]

Chemicals Division—Industrial

Capital Requirements
($000 Omitted)

	1960	1961	1962	1963	1964	Total
Company-Owned Facilities						
1. Approved projects included in previous "Whither" reports, approved at previous "Whither" meeting (latest cost estimate)						
Chlorine-Caustic-Niagara Falls	$8,646	$ 150				$ 8,796
Chlorine-Caustic-Charleston, Tenn.	1,000	9,755				10,755
(In Lieu of McIntosh Location)						
Total Item 1	$9,646	$9,905				$19,551

[fol. 1074]

Joint Ventures (1)						
Penn-Olin-Sodium Chlorate	1,000	5,504				6,504

(1) OMCC's capital investment would be reduced by the amount of any debt financing undertaken by these subsidiary companies.

[fol. 1075]

Chemicals Division—Industrial

Economic Evaluations for Joint Ventures
(OMCC's Interest 50% Thereof)—($000 Omitted)

	Penn-Olin Sodium Chlorate Plant
Gross Outlay for New Property	6,504
Less: Cash Recovery	—
Net Outlay for New Property	6,504
Receivables and Inventory	675
Moving, Severance and Other Expenses	157
Federal Income Tax Credit at 52%	(82)
Net Outlay to be Recovered	7,254
Gross Investment	7,179
Total Net Sales	3,945
Total Net Profit	669
% to Net Sales	17.0%
% Return on Gross Investment	9.3%
Cash Profit	1,044
Pay-Out Period—Full Production Rate	6.9
Pay-Out Period—From Start of Construction	8.9

[fol. 1076]

Year Money Required	1960
Construction Period	
Start	7/60
Finish	10/61

[fol. 1078] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 59

Mathieson Chemical Corporation
Mathieson Industrial Chemicals Division
Executive Offices, Mathieson Building
Baltimore 3, Maryland

May 25, 1953.

Logan here 6/2

Will prepare proposed agreement on Chlorine Dioxide and send to me before S12 leaves for West Coast.

Mr. W. P. Drake, Vice President

Pennsylvania Salt Manufacturing Company
1000 Widener Building
Philadelphia 7, Pennsylvania

Dear Bill:

Your note of May 22nd is very flattering in indicating a suspicion that we are taking all of your customers away but the facts do not support this idea.

Will be very happy to meet you in Philadelphia on June 3rd (Wednesday), or on Tuesday, June 2nd, if you prefer. Your note is slightly confusing in this respect.

If we can make it Wednesday, June 3rd, I will try to have our Chlorine Dioxide expert join us and we will plan to stop at your office sometime just prior to the noon hour.

Kind regards

Sincerely yours, J. O. Logan, Vice President—Director of Sales

JOL:rsm

Received May 27, 1953.

[fol. 1079] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 60

Penn Salt

Clear contracts, so no wires crossed.
Exchange our discussions between PS.

July 31, 1953.

Mr. John O. Logan
Vice President-Director of Sales
Mathieson Chemical Corporation
Mathieson Building
Baltimore 3, Maryland

Dear John:

Enclosed herewith are two copies of the Chlorine Dioxide agreement duly executed. Enclosed also is our check for $1,000.00 payable to you as advance royalty to defray initial expenses to be incurred by Mathieson under this agreement, such sum to be credited against the sums payable under Paragraph #4 of the agreement.

I am suggesting to Fred Shanaman that he have one of his people, probably Brian Shera, contact your Mr. Woodside to arrange for the latter's visit to Tacoma in the near future, at which time they can exchange the information agreed upon.

I too hope that the agreement will prove mutually beneficial.

Cordially yours, Wm. P. Drake, Vice President.

S12: Attached is one of the two executed copies available to us. Also, a copy of the agreement which Mathieson would make with a mill using their process. I thought it well to send our check at the time we returned the agreement to John Logan. If you feel that you would like to reimburse the Parent Company for a portion of this, at least, that will be up to you. Originally I think you talked in terms of paying for the whole of it, but the thought occurred to me that if we make use of this we should not ask you to stand the full amount. However, I will let you be the judge on that score.

I think it might be desirable to make sure that whatever [fol. 1080] contacts either of us has with anyone in the Mathieson organization be made known to each other so that we don't get our wires crossed. For example, I would hope that Brian Shera, or whoever talks with Woodside would keep accurate notes of the conversations because if at some time later Woodside talks with us back here it would be helpful to know what he discussed and how Brian had handled it on the West Coast. Naturally, we would give you a record of our discussions with Mathieson.

It will be some time probably before we pay them any royalties so we can work out the mechanics of that when the time arises.

——, ——.

WPD:m

[fol. 1081] Memorandum of Agreement made as of the 31st day of July, 1953, between Mathieson Chemical Corporation, a corporation of Virginia, and Pennsylvania Salt Manufacturing Company, a corporation of Pennsylvania, whereby, in consideration of the covenants hereinafter set forth, it is agreed:

1. Mathieson and Pennsalt agree to exchange technical data, information and know-how in the field of chloride dioxide generation from chlorates now owned or acquired during the term of this agreement, except for information that cannot be disclosed because of security classification by the United States Government. All such disclosures, to the extent that they are marked confidential at the time of disclosure, shall be maintained in confidence and shall not be disclosed to others, except as necessary to carry on the business of the parties, unless and until such information becomes public otherwise than by act or omission of the recipient.

2. Mathieson and Pennsalt each covenants not to sue the other or a licensee of the other in the below identified field for infringement of Letters Patent of the United States or Canada claiming improvements in the field of chlorine dioxide generation from chlorates based on inventions made before termination of this agreement.

3. Mathieson agrees to grant, to any responsible party engaged in the processing of pulp nominated by Pennsalt,

an immunity in the form annexed to this agreement upon the terms therein recited.

[fol. 1082] 4. Pennsalt agrees to pay to Mathieson the sum of fifty cents ($.50) per ton of sodium chlorate sold by it for the purpose of or sold by it and used for generation of chlorine dioxide. On or before the end of the first month following each anniversary of this agreement during its term, Pennsalt agrees to render Mathieson a written report of the sums payable as provided in this paragraph, and with each such report, to remit the payment due.

5. Pennsalt agrees to pay Mathieson upon the execution of this agreement the sum of One Thousand Dollars ($1,000) as advance royalty to defray initial expenses to be incurred by Mathieson under this agreement; such sum to be credited against the sums payable under Paragraph 4 hereof.

6. This agreement shall continue for a period of five (5) years from the date hereof and shall be extended for an additional period of five (5) years unless one party notifies the other in writing, within six (6) months prior to the end of the initial five (5) year period, of its election to terminate the agreement at the end of that initial period.

Mathieson Chemical Corporation, By E. R. Van Vliet, Vice President and Treasurer. Pennsylvania Salt Manufacturing Company, By Wm. P. Drake, Vice President.

Attest:

W. Winsor, Secretary.

Attest:

E. J. Harrington, Asst. Secretary.

[fol. 1083] In consideration of the obligation to pay the fees below stipulated, Mathieson Chemical Corporation, a corporation of Virginia, hereby covenants this day of , 1952, not to sue , a corporation of and any United States subsidiary of which said controls not less than fifty per cent of the stock entitled to vote for directors, for infringement of any United States or Canadian Letters Patent which it owns or under which it has the right to grant licenses without accounting to others premised on the processing of pulp and paper stocks

with chlorine dioxide and the generation or purification of chlorine dioxide for the processing of such stocks. Said shall pay and hereby agrees to pay a fee of Five Hundred Dollars ($500) per mill of not more than 110 tons (dry weight) per day of bleached stock capacity and One Thousand Dollars ($1,000) per mill of more than 110 tons (dry weight) per day of bleached stock capacity for each calendar year through the year ending December 31, 1962, during which pulp or paper stock is processed with chlorine dioxide in such mills; and thereafter no further fees shall become due or payable. Such fees shall be paid to said Mathieson Chemical Corporation at Ten Light Street, Baltimore 3, Maryland, within thirty (30) days following each calendar year for which such fee or fees are payable. This agreement shall inure to the benefit of the successors and assigns of the said and any United States subsidiary thereof as above defined.

Mathieson Chemical Corporation, By ——, ——.

(Seal.)

Attest:

——, ——

Attest:

——, ——

[fol. 1084] In United States District Court

Plaintiff's Exhibit 61

Pennsalt Chemicals

September 10, 1954.

Mr. W. F. Mitchell
F. A. Lucard

Sodium Chlorate

D11 W17

In connection with our interest in sodium chlorate at Calvert City, we are requesting estimates on plant size of 3,600 tons and 5,000 tons per year. In reviewing the files on this subject I find that Mr. Dodson had prepared estimates on this subject back in September 1951.

This is an important project in our present thinking and I would appreciate any expediting that can be done on this matter. I shall be happy to assist in any way possible.

——, ——.

faf/rbh

[fol. 1085] In United States District Court

Plaintiff's Exhibit 63

Pennsalt Chemicals

Grogan P-12-ID 9-26-61 L.
Subject: Sodium Chlorate Survey
Date: February 2, 1955
To: Mr. G. D. Grogan.
From: R. W. Wurst—Atlanta

The following paper mills are using or plan to use Sodium Chlorate and all of them indicated to me that they would be very interested in giving us consideration as a supplier if we had a plant at Calvert City.

Although they could not definitely promise me any certain percentage of their requirements, they did state they could see no reason why they should not buy from us. All said, Calvert City was an ideal location.

I did not know of our interest in Salt Cake when I started this survey, this product was not discussed and the tonnage figures shown were acquired after I knew of our interest.

Mr. W. H. Thornton, purchasing agent at St. Regis Paper, Pensacola, Fla. told me that many of the paper mills purchasing agents had a meeting several months ago with Solvay, Mathieson and Diamond to try and induce them to make Salt Cake primarily for the Southeastern paper mills. Nothing came of this meeting. Mr. Thornton said that he and his men would be happy to talk with any one from our company to offer any information we may require regarding Salt Cake. Also he feels certain that all paper mills would be interested in signing long range contracts commitments.

There are quite a number of paper mills in Mississippi, Arkansas, and Louisiana. However, these were not con-

tacted inasmuch as you had suggested that they be contacted by our St. Louis office.

All of the mills I did contact indicated that there is a definite need for a Salt Cake production aside from the material that comes from rayon manufacture and sulphuric acid manufacture as a by product. Although the Canadian production is alright, the delivered cost is usually about $10 to $12 per ton higher than the material produced in this country. Mr. Thornton at St. Regis said that he thought a price of $25.00 per ton f.o.b. works, meaning Calvert City, would be reasonable to all concerned.

With the competition so well entrenched in the southeast on caustic soda and chlorine, it seems to me that the only way we would be able to share in any of this business, will be to offer a product such as salt cake or sodium chlorate. If we can do this, it seems logical that we would then be in a much better position to share in the caustic soda and [fol: 1086] chlorine requirements.

Other plants I contacted but who do not use sodium chlorate nor have any plans to use are the following:

Ruberoid Company
Mobile, Alabama
National Gypsum Company
Mobile, Ala.
Stone Container
Mobile, Ala.
St. Joe Paper Co
Port St. Joe, Fla.
Custa Paper Co
Piscah Forest, N C
Virginia Pulp and Paper Co
Charleston, SC
International Paper Co
Georgetown, SC

The four(4) companies in Mobile Alabama and the Custa Paper Co are not prospects for Salt cake but the other companies are.

R. W.

[fol. 1087] P-12-C-10

Company	Liq. $NaClO_3$/yr.	Salt Cake/yr.
Intl. Paper Co., Mobile, Ala.	2000 tons	Have 9 plants
1. Moss Point, Miss.	3000 tons in 2 years	Estimate 150,000 tons
2. Natchez, Miss.		
3. Bastrop, La.		
Hollingsworth & Whitney		
Mobile, Alabama	Investigating process	?
Buckeye Cellulose Corp.	Will use soon	?
Foley, Fla.	See J. R. Goode, Memphis office for req.	
Rayonier Corp.	Large	?
Jessup, Ga.		
Fernandina Beach, Fla.		
St. Regis Paper Co.		
Jacksonville, Fla.	None	11,000 ton
Pensacola, Fla.	In 18 mo.-2 yrs. 1600 tons.	11,000 ton
Tacoma, Wash.	In 18 mo.-2 yrs. 1600 tons	
Hudson		
Hudson Paper Co.	Will use in 1956	
Palatka, Fla.	See Sam Mendoke N.Y.C. for Req.	?
Reigel Carolina Corp.	9000 ton	Small
Acme, N.C.		Use ash and sulphur
Brunswick Pulp & Paper	Plan to use late in 55	?
Brunswick, Ga.		
St. Marys Kraft	2 T/C /mo.	?
St. Marys, Ga.		
Union Bag and Paper Co.	Do no bleaching	35,000 ton
Savannah, Ga.	No prospect of $NaClO_3$ now	
Macon Kraft, Macon, Ga.	No Bleaching—no prospect	15,000 ton
Rome Kraft, Rome, Ga.	No Bleaching—no prospect	15,000 ton
National Container Co.		
Fernandina Beach, Fla.	No bleaching	
Coosa River Newsprint.		
Coosa River, Ala.	Looking into process	
Bowaters		
Calhoun, Tenn.	?	

[fol. 1088] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 64

Sodium Chlorate

February 18, 1955.

Mr. A. S. Woodard
Wm. P. Drake
G11: L14: L16

George Grogan says:

> "We certainly should be able to sell about 5,000 to 8,000 tons out of Calvert at a price of $8.25 per 100 pounds in tank cars, or $8.75 per 100 pounds in drums, less anywhere from 10¢-25¢ per 100 pounds freight equalization."

Since I believe you are studying this matter currently perhaps these figures will give you something to hang your hat on.

——, ——.

WPD:m

W17's memo 3/7, Sent to L14, L16

[fol. 1089] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 65

Pennsalt Chemicals

February 25, 1955.

Mr. Malcolm McDonald, Director of Purchases
The Champion Paper and Fibre Company
Hamilton, Ohio

Dear Mr. McDonald:

We are certainly interested to see that you expect to begin ordering Sodium Chlorate in May of this year at Houston and later on at Canton. Since the tonnage we have available from Portland is not extremely sizable and since the equali-

zation with Columbus, Mississippi, is somewhat less to Houston than to Canton, we would appreciate it very much if you would consider us in supplying your Houston requirements; we would have no difficulty taking care of them. Our present price on Sodium Chlorate in tank cars is $8.25 per 100 pounds, f.o.b. Portland, Oregon, freight equalized with Columbus, Mississippi; we understand that the present freight rate from Columbus to Houston is 89¢ per 100 pounds + 15% + 3%. Terms are 30 days net, and our quotation would be subject to our standard quarterly price adjustment clause—Clause 3—on the back of the attached contract form.

In order to take advantage of the lowest freight rates from Portland to Houston, it would be necessary for us to ship in 8,000 gallon tank cars, holding approximately 90,000 pounds of Sodium Chlorate. In view of the fact that your requirements at Houston would be around 2 tank cars per month, we would think that you would find the larger size much more satisfactory for your purpose since you would not have the labor and trouble of unloading tank cars quite as frequently as in the case of 4,000 gallon cars. I think you will agree that the general trend on all commodities handled in bulk is toward larger cars.

We appreciate very much the opportunity of quoting and will be in touch with you later regarding your final decision on this matter. I might add that our contemplated plant at Calvert City, Kentucky, is still in the figuring stage, but if there is any possible way to put one in and get a reasonable return on our investment, I feel sure we will do so.

Yours very truly, Pennsylvania Salt Manufacturing Co., G. D. Grogan, Manager of Sales, Industrial Chemicals Division.

GDG:k
D11,G5,S25

[fol. 1090] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 66

Pennsalt Chemicals

March 21, 1955.

Subject: Sodium Chlorate
Date: March 8, 1955.
To: Mr. W. P. Drake
From: A. S. Woodard
Copies To: G11-L14-L16

Based upon the capital cost information submitted by Mr. Shanaman in his letter of December 27th to you and previous manufacturing costs data obtained with respect to West Coast operations, we have reviewed the economics of manufacturing sodium chlorate at Calvert. At a selling price of $8.25/cwt, the return on the fixed investment for a 7200 ton/year plant at Calvert is between 7% and 10%. At the same selling price, return on fixed investment for a 12,000 ton/year plant, is between 10% and 15%. Without additional considerations of the possibility of perchlorate manufacture, potassium chlorate manufacture, herbicide formulations or pending change in price structure, we believe that the manufacture of sodium chlorate at Calvert is at best a marginal operation and should not be contemplated at all at capacities appreciably less than 12,000 tons/year.

Mr. Shanaman in his letter indicated that the capital cost of the process facilities would cost $2,904,000 with an accuracy of +0% —25%. Therefore, with the inclusion of process services, the capital cost for a 7200 ton/year plant will range between $2,500,000 and $3,326,500. On the same basis, the capital cost for a 12,000 ton per year plant will range between $3,560,000 and $4,773,000. You will note that the estimated range for a 12,000 ton/year plant embraces the reported cost of the Oldbury plant.

We have estimated that the manufacturing cost for sodium chlorate based on 17 years depreciation, varies between $5.60/cwt and $5.88/cwt depending upon the capital cost of the 7200 tons/year plant. The manufacturing cost for the 12,000 ton/year plant varies between $5.43/cwt and $5.20/cwt again at limits being determined by the capital

cost of the plant. Using Mr. Grogan's estimated selling price of $8.25/cwt in hopper cars, we have a net return from sales after S&A, freight allowances and hopper car rentals of $7.42/cwt. Thus, the extremes of the return on investment for the 7200 ton/year plant are 6.68% and 10.5%; whereas, those for the 12,000 ton per year plant are 10% and 14.9% respectively.

The order of accuracy of the capital cost estimates is not high; however, we are confident that the actual cost of the plant would fall within the range estimated. Since under these conditions the basic return for sodium chlorate manufacture is not attractive, we believe the expense of refining these figures further would be unwarranted.

A. S. Woodard

asw: jh

[fol. 1091] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 67

Sodium Chlorate

March 23, 1955.

Mr. H. C. Land
Wm. P. Drake

File given to L14 3/25.

S12

It appears that after once again reviewing the possibility of producing sodium chlorate at Calvert at the rate of 7200 tons per year, the return on fixed investment is much too small (7 to 10%) to warrant further consideration at this time. Even a 12,000 ton per year plant would only give us 10-15% return on fixed investment.

Knowing that you have coming up fairly substantial demands for sodium chlorate to the paper industry I imagine you will want to make arrangements with Fred Shanaman, or with someone else if he doesn't have it available, to supply these requirements.

I suggest you get in touch with Fred as soon as possible

to see what you might be able to work out with him. It might be that Fred could add to his facility at Portland a sufficient amount to take care of your requirements.

Please let me know how you work this out.

——, ——.

WPD:m

[fol. 1092] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 71

Sodium Chlorate

December 17, 1956.

Mr. F. C. Shanaman
William P. Drake
L9: L14: W1

This morning's paper announces the fact that Oldbury is now expanding its Mississippi plant. It is reported they added 5000 tons to capacity this past spring. They are now planning to add another 5000 tons.

On the face of it this makes us look kind of silly when we consider the number of times we have evaluated unsuccessfully the installation of a chlorate plant in the Southeast. I think we should plan to review this matter once again when you are East in January.

——, ——.

WPD:m

[fol. 1093] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 72

Pennsalt Chemicals

P. O. Box 1297—Tacoma 1, Washington

Subject: Sodium Chlorate
Date: December 20, 1956
To: Mr. W. P. Drake
From: F. C. Shanaman
Copies To: L9, L14, W1

Reference your memorandum of December 17, on the above, I have believed for a long time that we probably could profit considerably from the results of a thorough-going investigation into this particular chemical which we have been manufacturing successfully since 1941. I suggest that we make it a project to seriously investigate why we have passed up the opportunities to manufacture sodium chlorate elsewhere in the United States when these opportunities seemingly have been offered to us and when it has been an acknowledged fact that we perhaps have as much advanced information concerning the manufacture of sodium chlorate as anyone else. I urge you to appoint a committee of three to conduct such investigation and make a report to you of their findings within a matter of 60 days or less. My suggestions concerning this committee would be that it consist of Mr. Karr and Mr. More from the West Coast and Dr. LaLande at Philadelphia.

A report such as I have mentioned we could hope will bring out whether we know as much about sodium chlorate manufacture as we think we do and if so, why we haven't been able to set up plant or plants in other parts of the country rather than have our competition do so. Of course, it could be that we have been seeking a much higher return for our dollars invested by comparison with the rate our competition has been willing to accept. The question has been raised so many times and I believe we should have a

thorough investigation made so that the records will be put straight for any future reference we want to make to the same.

F. C. S.
or WPD

FCS/ep

[fol. 1094] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 73

Pennsalt Chemicals

Subject: Sodium Chlorate
Date: December 27, 1956
To: Mr. W. P. Drake
From: H. C. Land

In Ref To: Mr. Shanaman's letter to you dated December 20th.

Copies To: L9 S12 W1

I agree wholeheartedly with Mr. Shanaman's comments of December 20th. It should be helpful to know why we cannot justify a sodium chlorate plant in the east, especially since this product fits ideally into our product line. It is, of course, disconcerting to see Oldbury construct and expand a plant, and now to learn that Hooker intends to further expand its operation right in our own back yard.

We have reviewed figures on sodium chlorate many times and, specifically, on at least two occasions during the past two years. The figures for capital investment and plant cost reportedly were supplied by people on the west coast and reviewed to take into consideration the new improved chlorate cell. Each time the return on investment came very close to 10%, which is outside our capital investment policy. We all recognize that the cost of power is the most important single component of plant cost, and our studies indicate that we would have to purchase power for less than 3 mills per k.w.h. in order to obtain a satisfactory return. I do not know of any place in the east, where power can be bought today for this low figure, and you know that our power at

Calvert is costing about 4.25 mills. Incidentally, the last time we talked with Olin Mathieson about building a chlorate plant they told us they had investigated the possibility of building a plant in the east and that their cost figures, both capital and manufacturing, were surprisingly close to ours. You will recall that the latest idea is to build a plant in Puerto Rico and enjoy a tax saving; however, power there is in the neighborhood of 6 mills, which may be prohibitive.

It is entirely possible that Hooker is expanding their production in the east with the idea of increasing the selling price after they have become so thoroughly entrenched in eastern markets as to make it more difficult for another producer to enter the field.

H. C. L.

HCL:mk

[fol. 1095] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 74

Penna. Salt Mfg. Co.

Rec'd Jan. 24 1957. Industrial Chemicals Div.
Sodium Chlorate Plant in the East

January 22, 1957

Dr. W. A. LaLande, Jr.
W. Cooper Willits
D11-L14-K5-M32-S12

At a meeting held in the President's office today, attended by Messrs. Drake, LaLande, Land, Shanaman and Willits, a task force consisting of Dr. LaLande, as Chairman, and Messrs. Karr and More was appointed to submit a report on the above-mentioned subject to the President by March 1, 1957.

The purpose of the report is to determine for the last time the following:

1. Should Pennsalt have a position in the manufacture of chlorates in the East?
2. If so

(a) What should the position be?
(b) Where should a plant (if any) be located?
(c) What size plant (if any)?

3. If a plant cannot be justified in accordance with our capital investment policy, either alone or jointly with a partner such as Olin Mathieson, what should Pennsalt's position be in regard to chlorates in the East, and what will be Pennsalt's future in this field?

The tenor of the study is to find how we can do it rather than why we can't.

wcw/r

[fol. 1096] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 75

Pennsalt Chemicals

Subject: Sodium Chlorate
Date: January 22, 1957
To: Messrs. G. E. More and E. H. Karr
From: F. C. Shanaman

You may or may not recall that I suggested to Mr. Drake that we have a small committee or task force appointed for the purpose of reviewing available information concerning sodium chlorate as the same may relate to the building of a chlorate plant in the eastern part of the United States. It was my hope that such task force could make a report to end all reports, and to the end that we would either close our file or we would pursue more actively than ever before the idea of building a chlorate operation other than at Portland, Oregon.

At a meeting today, Mr. Drake appointed Dr. LaLande as chairman of the task force with you two fellows as the other members. It is hoped that the three of you will be able to get a report in such shape that it can be presented to Mr. Drake not later than March 1. We have a considerable

amount of information and I would suggest, in anticipation of meeting with Dr. LaLande, you get the facts in such shape that it will minimize the time which will have to be spent in conversation. I believe the hard part will be to judge what type of building would be required and what the costs for the same would be; what we estimate has been the investment requirement for the Oldbury plant in Mississippi and what their costs probably are per ton; also what the investment might be for American Potash's proposed 15,000 ton plant and what costs for product might result; what the market in the East is likely to be and to what extent we believe we can participate on a contract basis. I have no doubt but what we can, by pooling information and experience, come up with a reasonably accurate report within 30 days and I trust you will anticipate cooperating and working with Dr. LaLande to the extent necessary in the accomplishment of this objective.

F. C. S.

FCS:ram

[fol. 1097] In United States District Court

Plaintiff's Exhibit 76

Penna. Salt Mfg. Co.

Received Feb. 25, 1957, Industrial Chemicals Div

Chlorates
February 21, 1957
Dr. W. A. LaLande, Jr.
William P. Drake
L14: W1

Fred Shanaman reports that American Potash are building their new chlorate plant at Aberdeen, Mississippi, 27 miles from Columbia, Mississippi which, you will recall, is the location of the Hooker-Oldbury plant. American Potash are getting power at 4½ mills.

I thought this information would be helpful to you in the appraisal you are making of our chlorate position.

WPD:m

[fol. 1098] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 82

Pennsalt Chemicals

P.S.M. Co. Confidential

Subject: Sodium Chlorate Plant in the East—Report—Part I
Date: March 12, 1957
To: Mr. William P. Drake
From: W. A. LaLande, Jr. (for the Committee)
Copies To: K5, L14, M32, S12, W1

This is the first report on the assignment given to Messrs. Karr, More, and me during the meeting in your office on January 22, 1957.

Mr. Willit's letter of January 22 summarized the purpose of the assignment as definitive in developing answers to the following questions:

"1. Should Pennsalt have a position in the manufacture of chlorates in the East?

"2. If so,

a. What should the position be?
b. Where should a plant (if any) be located?
c. What size plant (if any)?

"3. If a plant cannot be justified in accordance with our capital investment policy, either alone or jointly with a partner such as Olin Mathieson, what should Pennsalt's position be in regard to chlorates in the East, and what will be Pennsalt's future in this field?"

The Committee (K5, L9, M32) met in Tacoma and Portland February 18-22 for a discussion of the assignment and the formulation of a report. It was decided that a two-part report would be necessary. Part I would present capital investment and return on investment data while Part II would cover the market potential for the product in the east and the other points in Mr. Willit's January 22 letter. It

was recognized that a policy decision by Management following analysis of Part I might result in a decision to abandon the project without further study.

[fol. 1099] Conclusions

1. Pennsalt's important position in sodium chlorate in the northwest has provided us with the manufacturing, selling, and technical service know-how required for the merchandising of this product. It would appear logical therefore for us to extend our position in the east provided we could be assured of a market potential of at least 15,000 tons per year. Actually, however, we now find ourselves considering being a late third entrant into the field at a time when many other projects are competing for the company's capital funds, and when competitive sodium chlorate capacity in the area is increasing.

2. Using Western Division's experience and operating data on sodium chlorate, Mr. J. B. Heitman at Tacoma developed for the assignment the following data for a 15,000 ton per year plant (minimum size) located at Calvert City.

Sodium Chlorate at Calvert City
15,000 Tons Per Year

Fixed Investment		$4,226,000
Working Capital		580,000
Cash	$ 50,000	
Inventories	200,000	
Accounts Receivable	330,000	
		$4,806,000

	Per Cwt.	Per Year
Net Sales	$9.0000	$2,700,000
Cost of Manufacture	6.2741	1,882,224
Gross Profit	2.7259	817,776
Sales and Administration	0.9000	270,000
Net Profit (before F.I.T.)	1.8259	547,776
Return on Fixed Investment, %	13.0	
Return on Total Investment, %	11.4	
Return on Net Sales, %	20.3	

A corresponding estimate for 15,000 tons annual production at another unspecified location where all necessary services would have to be supplied, i.e., where it [fol. 1100] would not be able to take advantage of various types of services already installed at Calvert City, produced the following figures.

Sodium Chlorate at a New Location
15,000 Tons Per Year

Fixed Investment		$4,828,000
Working Capital		585,000
Cash	$ 55,000	
Inventories	200,000	
Accounts Receivable	330,000	
		$5,413,000

	Per Cwt.	Per Year
Net Sales Price	$9.0000	$2,700,000
Cost of Manufacture	6.5228	1,956,852
Gross Profit	2.4772	743,148
Sales and Administration, 10%	0.9000	270,000
Net Profit (before F.I.T.)	1.5772	472,148
Return on Fixed Investment, %	9.8	
Return on Total Investment, %	8.7	
Return on Net Sales, %	17.5	

For a 20,000 ton per year plant at Calvert City the following data were derived:

Sodium Chlorate at Calvert City
20,000 Tons Per Year

Fixed Investment		$5,278,000
Working Capital		760,000
Cash	$ 60,000	
Inventories	250,000	
Accounts Receivable	450,000	
		$6,038,000

[fol. 1101]

	Per Cwt.	Per Year
Net Sales	$9.0000	$3,600,000
Cost of Manufacture	5.9732	2,389,284
Gross Profit	3.0268	1,210,716
Sales and Administration, 10%	0.9000	360,000
Net Profit (before F.I.T.)	2.1268	850,716
Return on Fixed Investment, %	16.1	
Return on Total Investment, %	14.1	
Return on Net Sales, %	23.6	

We believe the accuracy of our capital estimates is —0 - +10%; i.e., the facility might cost 10% more than the estimate, but not less. A considerable delay in construction of the plant would render the estimates invalid. In any case, re-estimating would be necessary for obtaining firm figures for an appropriation request.

We have used 4.25 mills per kilowatt hour for electric power.

We have used $0.09 per pound, in drums as the selling price. This is based on $0.08 per pound bulk, cl., +$0.01 per pound in drums. The actual total sales return

would, of course, depend on the breakdown between bulk and drum shipments, which we don't know now. Higher prices, which are likely, would improve the return, but freight equalizations might minimize the effect of this benefit.

3. Oldbury Division of Hooker operates a 10,000 ton per year sodium chlorate plant at Columbus, Mississippi and has announced a 12,000 ton per year addition to this plant. American Potash recently announced that it would install a 15,000 ton per year sodium chlorate plant at Aberdeen, Mississippi. The eastern capacity for sodium chlorate will then be 37,000 tons per year, excluding Oldbury at Niagara Falls. It is reasonable to assume that both Hooker and American Potash expect to sell this amount of sodium chlorate within a few years and that they are counting on at least some expansion in the future. The potential requirement for sodium chlorate in this area has not been determined by Pennsalt.

[fol. 1102] 4. Because the return on the investment on a minimum size sodium chlorate plant (15,000 tons per year) is considerably less than that required by our investment policy for this type of project (30% before taxes), it is first necessary for Management to consider an eastern installation of this chemical on the basis of investment return and available capital funds. It might be decided that this case can be considered an exception and that the return is acceptable and that new capital funds can be made available by the Company, or through outside financing (by borrowing more money or by forming a subsidiary with another company). Another approach requiring analysis would be the removal of other projects totalling approximately $5,000,000 from our plan and the substitution of this sodium chlorate project.

Recommendation

1. The Company's interest in this project should be reexamined on the basis of the data submitted in this report to determine whether Part II should be undertaken.

WAL:fn

[fol. 1103] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 83

Pennsalt Chemicals

P. O. Box 1297—Tacoma 1, Washington

Confidential

Subject: Sodium Chlorate Plant in the East—Report—Part I

Date: March 26, 1957
To: Dr. W. A. LaLande
From: F. C. Shanaman
Copies To: D11, M32, K5

Al, I have read contents of your initial report on the above with interest and also with disappointment. I found little in the report not known before and little to help the members of the Management Committee reach a decision as to where we go from here. I think the reason this is so is because members of your committee elected, for some reason unknown to the writer, to report on the estimated dollars required to build an operation and stopped at that point, whereas the most important part of the investigation is related to the reasons why the investment should be made or not made even if the return was expected to be less than company policy. I do not feel, therefore, that the report is sufficiently complete to accomplish what we expect. Until we know more about the market possibilities and what such investigation discloses relating to opportunities for outside financial participation and influence that a chlorate plant might have on long range relations with other companies, I don't believe we can intelligently judge where we should be going on chlorate in the East.

—, —

FCS:meh

[fol. 1104] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 84

Sodium Chlorate Plant in the East

March 27, 1957
File
W. Cooper Willits

D11-L14-K5-M32-L9-S12

At a meeting held in the President's office today, attended by Messrs. Drake, LaLande, Land and Willits, it was agreed that Dr. LaLande would be responsible for the preparation of a market survey covering chlorates in the East, to supplement Part I of his report of March 12 on Sodium Chlorate Plant in the East.

In the preparation of this survey, Dr. LaLande will be permitted to requisition any help that he may desire from within the Company. Dr. LaLande indicated that he would like to set up a team for this purpose, which would consist of a representative from Commercial Development, Industrial Division and Western Division.

It was agreed that the report would be completed within three months.

wcw/r

(June 30)

[fol. 1105] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 87

April 18, 1957.

Arthur D. Little, Inc.

Thirty Memorial Drive
Cambridge 42, Massachusetts

Mr. Robert Eastman
Pennsylvania Salt Manufacturing Company
Three Penn Center Plaza
Philadelphia 2, Pennsylvania

Dear Mr. Eastman: 1-2177

We are glad to have the opportunity to submit this proposal covering a market survey of sodium chlorate, as a result of your telephone conversation with R. F. Messing on April 16.

Objective

We understand that PennSalt is giving consideration to the possibility of manufacturing and selling sodium chlorate in the area east of the Rockies, and is interested in a review of prospects for participation in this field. The information would be utilized to assist the company's management in reaching a decision on the desirability of producing this material, the plant size, location, and sales outlets which would be necessary to implement the program.

Scope of Work

Our investigation relating to the market potential for sodium chlorate would involve a determination of the following characteristics of the industry.

1. Present producers, capacity, expansion plans, and possible new entrants to the field.
2. Market distribution, in terms of end uses, geographical location, type of market outlet, and growth potential.
3. Development of new uses and appraisal of impact of new technology on established uses.
4. Distribution channels, sales customs, technical support, types of packaging, and similar factors.

5. Price outlook, based on competition in the industry, demand-supply balance and similar factors.

[fol. 1106] Following this industry characterization, we will analyze and interpret the data in such way as to permit decision by PennSalt on the desirability of entering the field, the most promising areas for plant location, the marketing procedures required, and the plant capacity most appropriate for the market. The latter will, of course, also depend upon plant investment and cost factors, although we do not contemplate that these will be included in the present survey.

Proposed Approach

As a first step in this program, we will meet with you and your associates to discuss in greater detail your specific interests and to obtain any general background which would be available by virtue of your present position in manufacturing on the West Coast. We will then undertake to assemble pertinent background information from literature sources and from our files, as well as from Government agencies, trade associations, and others who might contribute useful background. Principal effort will then be placed on interviews in the consuming industries, with the attention focused in the following categories:

1. Agricultural
2. Paper
3. Chemical manufacturing, including perchlorates
4. Miscellaneous outlets.

Following collection of data from these sources, we will correlate and interpret the findings to provide recommendations on the most appropriate course of action for PennSalt. We will not reveal your identity during the course of this work but will bear in mind your interest in joint venture opportunities, so that these can be brought to your attention promptly as a first step to arrange a meeting between the parties concerned.

As is our custom, we will keep you in close contact with the progress of our work. Mr. Donald R. Gibbons will be in charge of the program, with the work to be handled on a team basis utilizing other personnel with appropriate backgrounds and experience. We understand that we will look

to you for direction and coordination of your company's interests.

Duration and Cost

We estimate that this activity can be completed within a period of three months from the date of your authorization. We propose that you authorize charges for PennSalt not to exceed $10,000, with out-of-pocket expenses to be billed in addition at cost to you. It is our usual practice to render invoices monthly as the work progresses.

[fol. 1107] General Provisions

Information of a confidential nature furnished to us by you will be treated in accordance with our established professional standards. Reports resulting from this assignment become your property, but our authorization is required if our reports are reproduced in whole or in part for use outside your organization. It is understood that neither party will use the name of the other for advertising or promotional purposes without prior permission.

This agreement may be terminated by either party on thirty days' written notice or within such lesser time after notice as we can conclude the work currently under way.

Acceptance

For the purpose of staff scheduling, all our proposals are made subject to prompt acceptance. If you would like us to proceed with this assignment, we would appreciate having the enclosed copy of this letter signed and returned for our file.

We look forward with interest to working with you and your associates.

Very truly yours, Arthur D. Little, Inc., John H. Adams, Contracting Officer.

John H. Adams/jhl

Enclosure

Accepted for Pennsylvania Salt Manufacturing Company.

By: ——. Date: —.

Title: ——.

[fol. 1108] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 89

Extract from—Management Committee Meeting No. 59
Date—April 26, 1957
Members Present—Messrs. Beale, Clem, Collins, Drake, Hull, Land, Shanaman and Willits
Members Absent—Messrs. Clark and LaLande
Also Present—Messrs. Tuttle and Penfield from 9 until 10 A.M.
Progress Reports on Major Objectives:
Sodium Chlorate Sales Expansion to Pulp Mills and Other Industries.

Sodium Chlorate Sales Expansion

Mr. Shanaman reported that considerable progress with respect to minimizing the importance of Chipman sodium chlorate purchases. Western Division has reduced their obligations under the Chipman contract sufficiently to have greater freedom of action saleswise than heretofore and also in the selection of the type of Chipman business to accept. Agriculturally speaking, Western Division is expanding its sales activity throughout the Middle West and has been successful in picking up additional uranium business in the Inter-Mountain territory. Sales have been increased to one pulp mill account, and negotiations are currently in progress with two others for a portion of their business this year or, if not successful this year, for at least 50% of same in 1958.

[fol. 1109] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 96A

P. S. M. Co. Confidential

Industrial Division

Received October 16, 1957, General Manager.

Subject: "Chlorates Opportunities East of the Rocky Mountains"

Date: October 16, 1957
To: Mr. William P. Drake
From: W. A. LaLande, Jr.

Copies: G27, L14(x), M93, S12(x), S44, W17, W1

Attached please find Technical Division's Commercial Development Department Market Study "Chlorates Opportunities East of the Rocky Mountains." The report includes the A. D. Little survey.

The "Summary and Conclusions" and "Recommendations" outlined in pp 2-12 of the report indicate that Pennsalt should consider supplying a part of the estimated required increase of 30,000 tons in sodium chlorate capacity (by 1962). The new production would be needed mostly for pulp bleaching and perchlorates manufacture.

Pennsalt's most recent figures (February 1957) for a 20,000 tons per year plant at Calvert City showed that a total investment of $6,038,000 would be required and that the return of this investment would be 14% (15 years depreciation). The return becomes 20% if the $0.01 per pound price increase referred to in the report is used in the calculations. We have not made estimates on the profitability of potassium chlorate and ammonium perchlorate production.

This project obviously requires discussion. A meeting has been arranged for Nov. 6—2:30 in the Board Room. All those receiving copies of this letter are requested to attend.

WAL:fn
Attachment

[fols. 1110-1111] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 96B

Markets for Sodium Chlorate East of the Rocky Mountains

Report to Pennsalt Chemicals Corporation

August 19, 1957

C-60819

Arthur D. Little, Inc.

[fol. 1112] I. Summary

A. Scope

In our survey of the sodium chlorate markets east of the Rocky Mountains, three fourths of our effort has been devoted to the use of sodium chlorate in wood-pulp bleaching; except for the trend toward the use of perchlorates in propellants, the other markets have not been explored in detail. Production and consumption in all but the pulp markets are treated on a national basis. Since we have not investigated the significant and probably growing market for sodium chlorate in the pulp industry of the Pacific Northwest, we cannot make an over-all recommendation on the pulp industry to Pennsalt.

B. Conclusions

The current U. S. sodium chlorate production capacity is about 72,500 short tons annually. By late 1958 this will reach 92,500 tons, of which 50,000 will be capacity east of the Rocky Mountains. American Potash & Chemical Corp. and Hooker Electrochemical Co. will have a combined capacity of 37,000 tons in Mississippi. The two plants are strategically located to supply most of the Eastern pulp industry's 1959 requirements, which will be about 46,000 tons.

Table I gives our estimate of the rate of consumption by the end of 1957 and 1962. The Eastern markets will total about 52,000 tons by the end of this year, and between 77,500 and 81,500 tons at the end of five years. On the limited basis of a regional supply and demand, there appears to be an excellent opportunity for another supplier in the East. Pennsalt should make a decision quickly; if it is affirmative, Pennsalt should publicly announce its plans, thereby forestalling expansion-minded competitors. At least three companies, including Columbia-Southern Chemical Corp. and Virginia Smelting Co., are investigating the domestic sodium chlorate market.

The generation of chlorine dioxide for wood-pulp bleaching is the largest market for sodium chlorate. The demand for better paper and paperboard has forced the pulpers to make brighter pulp, and the conventional chlorine, caustic, and hypochlorite bleaching process cannot efficiently achieve

the levels of brightness now in demand. Pulpers have had to turn to the use of either chlorine dioxide or hydrogen peroxide in conjunction with the conventional bleaching steps. The sulfate, the dissolving sulfate, and to a lesser extent, the soda and dissolving sulfite are the major pulping processes using chlorine dioxide. Peroxide is also used to bleach some of these types of pulp.

[fol. 1113] There is a controversy within the industry as to which of the two new bleaching processes is best. Each has its advantages and disadvantages. A chlorine dioxide bleaching step requires a large capital investment, while a peroxide bleach does not. On the other hand, most pulpers with whom we spoke contend that the cost of bleaching a ton of pulp with peroxide is about one dollar higher than with chlorine dioxide. Some authorities think peroxide minimizes color reversion after bleaching; others say that chlorine dioxide can bleach to a greater brightness. We believe that chlorine dioxide bleaching is the preferred process. However, if the price of peroxide is reduced—and it might be if Shell Chemical Company decides to move ahead with its plans for production—the economics of the two processes will become more competitive.

Twenty-five Eastern mills are now using chlorine dioxide. One expansion and seven new chlorine dioxide bleaching plants are being installed. We estimate that an additional eight mills will install chlorine dioxide by 1962.

The use of perchlorates as solid oxidizers in missiles is a second important factor of the growth in the demand for chlorates. But like most defense requirements, this market is unstable and hence unpredictable. In any event, perchlorates, particularly ammonium perchlorate, are the best oxidizers for solid propellants; in the unclassified documents we have read we have found no indication that better propellants are likely to be developed in the next five years. The trend toward the greater use of rocket-propelled missiles, and the trend toward solid propellants (because of their simplicity) in preference to liquid propellants indicate an increased demand for perchlorates. Only about one-fifth of the total U. S. perchlorate capacity is being utilized at present, but we have been told—within the limits of security restrictions—that the demand for perchlorates, of one type or another, may expand five- or sixfold during the next

five years. This could become an attractive outlet for a portion of a new plant's chlorate production. We have recommended that Pennsalt discuss the perchlorate situation with Thiokol Chemical Corp. and the Bureau of Ordnance of the Navy Department, after receiving security authorization.

If Pennsalt builds a sodium chlorate plant in the East, marketing will be an important factor. Because of the fine technical service and excellent products being offered by the two major suppliers of sodium chlorate to the pulp industry—Solvay Division of Allied Chemical & Dye Corp. (handling Ampot's products) and the Oldbury Division of Hooker Electrochemical—Pennsalt has little opportunity to gain a competitive advantage. On the other hand, it en- [fol. 1114] joys a good reputation in the pulp trade, it has the experience of the Northwest market to draw upon, and it has the Mathieson chlorine dioxide generating process. In addition, the judicious selection of a location for the new plant could help Pennsalt gain a stronger foothold in the Eastern pulping area.

Appendix A briefly surveys the range of U. S. industrial power rates that Pennsalt may expect to encounter. Appendix B provides information on the possibility of manufacturing sodium chlorate in Puerto Rico.

[fol. 1115] II. Production of Chlorates and Perchlorates

A. Chlorates

The United States began the large-scale production of sodium chlorate in 1925, with a capacity of about 4500 short tons. In 1933 two companies started producing potassium chlorate; prior to this date all potassium chlorate had been imported. World War II cut off imports, upon which domestic consumers had depended heavily; domestic production capacity then expanded rapidly to meet civilian and military requirements.

In 1940, the U. S. chlorate production capacity was 17,000 tons; by the end of 1945 it was 33,500 tons. During the war, direct military requirements—almost entirely for potassium chlorate—equaled 13% of the total allocations. Potassium chlorate for matches consumed about 70% of the total; exports accounted for about 10%. The production of potas-

sium chlorate reached a peak of 23,711 short tons in 1942. As Figure 1 shows, it has never reached this level since. The consumption of potassium chlorate now depends upon the match industry; the minor growth in this use and in miscellaneous uses is not expected to tax the present capacity in the foreseeable future.

After World War II, sodium chlorate steadily gained in importance, at first because of its growing use as a soil sterilant, and during the Korean emergency because it was a raw material for perchlorates. There was a slight drop in production during 1954, but production capacity and actual production have steadily climbed since then. This rapid growth has reflected a demand for sodium chlorate in the generation of chlorine dioxide for pulp bleaching, and this will require an even greater production capacity during the next five years. The total sodium chlorate production capacity was 67,570 short tons on January 1, 1955; now it is about 72,500 short tons. By 1959, the capacity will exceed 92,500 short tons annually.

There are four domestic producers of sodium chlorate: American Potash & Chemical Corporation; Hooker Electrochemical Company; Pennsylvania Salt Manufacturing Company of Washington; and Cardox Corporation, a division of Marmon-Herrington Company, Inc. Table II gives their plant locations and their estimated sodium chlorate capacities. The first three companies also produce potassium chlorate. The available potassium chlorate capacity probably exceeds 20,000 tons, but the utilized capacity is expected to remain at about 10,000 tons annually through 1962.

[fol. 1116] Over the last 30 years several other companies, including National Electrolytic Co., North American Chemical Co., Diamond Alkali Co., and International Mineral & Chemical Corp., have been in and out of chlorates and/or perchlorates. Columbia-Southern Chemical Corp. (a subsidiary of Pittsburgh Plate Glass Co.) and Virginia Smelting Co. have been rumored to be interested in entering the domestic sodium chlorate market. On July 30, 1957, Pittsburgh Plate's Canadian subsidiary, Standard Chemical, Ltd., announced its plans to produce sodium chlorate at its plant in Beauharnois, Quebec.

B. Perchlorates

Perchlorates are of primary interest to the military services for their oxidizing properties in composite propellants and to a much lesser extent, in pyrotechnics. Toward the end of World War II the Henderson, Nev., sodium and potassium perchlorate plant was put into operation, greatly expanding U. S. production capacity. The potassium perchlorate was used in JATO units. After the war, production declined to a very low level until the advent of the Korean emergency. In 1950, U. S. production of potassium perchlorate equaled 1818 short tons. It increased to 4370 tons in 1951, again primarily for JATO units (and partly for boosters and sustainers in solid-propellant rockets). By 1954, with the Korean emergency almost over, production slipped to 826 tons. The decline was accelerated by a shift in government interest from potassium perchlorate to ammonium perchlorate, principaliy because the latter is relatively smokeless. Like potassium chlorate, potassium perchlorate will probably never regain its former importance; the present production capacity is more than ample to meet the foreseeable demand.

Ammonium perchlorate has become the most important perchlorate. The requirements for smokeless JATO units, and more important, growing need for solid-propellant boosters and sustaining rocket motors for missiles will consume increasing quantities of ammonium perchlorate in the defense program. The production capacity is estimated at 16,500 short tons annually; current production is about 3500 tons annually. Ampot is the only domestic producer.

The production of lithium perchlorate and perchloric acid is at present negligible. Table III lists the perchlorate producers.

[fol. 1117] C. Producers

1. American Potash & Chemical Corporation

Ampot entered the chlorate market by virtue of its acquisition of Western Electrochemical Company in November 1955. Western Electrochem first produced chlorates in a small plant in Los Angeles in 1941.

The increased demand for chlorates during the war necessitated the conversion of part of the Henderson, Nev., plant of Basic Magnesium, Inc., to chlorate production. The

magnesium cells were removed and replaced with Schumacher chlorate and perchlorate cells. The plant, which was under the control of the Defense Plant Corporation, was in operation by July 1945. Within one month, with the arrival of V-J day, the plant was closed down. In February 1946, Western Electrochem leased the Henderson plant and put it back into operation. The Los Angeles operation was then closed down.

The facilities that Ampot inherited from Western Electrochem consist of two plants, the original one and one built during the Korean emergency. Ampot owns outright a sodium chlorate plant having an estimated annual capacity of 23,000 tons. It occupies and operates a government-owned sodium chlorate plant under contract from the Navy. This plant, with an estimated capacity of 7200 tons per year, supplies sodium chlorate in solution to a Navy-controlled sodium perchlorate plant, which in turn supplies the necessary raw material to the Navy's small potassium perchlorate plant and some raw material to the Navy's ammonium perchlorate plant (its capacity is 14,500 tons per year), which was built in 1953. Ampot has its own sodium and potassium perchlorate plants, and we believe that it has a 2000-ton-per-year ammonium perchlorate pilot plant. The company is also producing pilot-plant quantities of lithium perchlorate.

Ampot has announced plans to construct a 15,000-ton-per-year sodium chlorate plant at Aberdeen, Miss., at an estimated cost of $5 million. This plant is scheduled for completion in mid-1958. Without question it is being built to supply the growing pulp-bleaching market in the Southeast.

As Ampot completes its integration of Western Electrochem into the corporate structure, it is very likely to push the sale of chlorates and perchlorates more aggressively. At present, Chipman Chemical Company, Inc., markets most of Ampot's sodium chlorate going to the agricultural markets. The Solvay Division of Allied Chemical & Dye Corporation sells Ampot's sodium chlorate to the pulp industry. Ampot handles all the other markets. Although we [fol. 1118] have no evidence to confirm our views, we believe that as soon as it is practical to do so, Ampot will try to sell direct to the pulp industry without Solvay's help.

2. Hooker Electrochemical Company

Like Ampot, Hooker is a relative newcomer to the chlorate business. It entered this market by the acquisition of Oldbury Electro-Chemical Co. in November 1956. Oldbury claims to have installed equipment for the electrolytic production of chlorates and perchlorates in 1899. It has chlorate and perchlorate production facilities at Niagara Falls, and a new sodium chlorate plant at Columbus, Miss. Oldbury was controlled for many years by Albright & Wilson, Ltd., of Oldbury, England. (When Oldbury merged with Hooker, it severed connections with an affiliate company, Electric Reduction Co. of Canada. This company was also controlled by Albright & Wilson. While the matter is beyond the scope of this report, it is worth mentioning that Electric Reduction produces sodium and potassium chlorate at Buckingham, Quebec, and has just completed a $5 million sodium chlorate plant at North Vancouver, British Columbia. Electric Reduction is reputed to have a sodium chlorate production capacity of 24,000 short tons annually.)

Oldbury has been an important supplier of potassium chlorate to the match industry for many years. In fact, the company is believed to have been intimately involved in the match cartel prior to World War II. During the Korean emergency Oldbury was actively negotiating with the Army to build and operate an ammonium perchlorate plant. This step was never taken; the company still does not produce ammonium perchlorate, although its chlorate and perchlorate line is complete in every other respect.

Under Hooker, Oldbury's products can be expected to be more aggressively merchandized. Mr. Fred H. Berggren, formerly assistant sales manager of Oldbury, has been appointed supervisor of chlorate chemicals by Hooker.

3. Pennsylvania Salt Manufacturing Company of Washington

Pennsalt of Washington is the third most important producer of sodium and potassium chlorate. For obvious reasons no further discussion of this company is necessary.

[fol. 1119] 4. Cardox Corporation

Cardox Corporation, a company specializing in carbon dioxide, both for fire extinguishers and as a nonexplosive

means of fragmenting coal for easy mining, produces chlorates at Claremore, Okla. Most of its production is used captively as a heating element in its CARDOX tubes. These tubes are heavy-walled containers for carbon dioxide under pressure. At one end of the tube is a rupturable metal diaphragm leading to exhaust ports. At the other end is an electrically heated wire embedded in a chlorate or perchlorate mixture, which rapidly heats when energized. The compressed carbon dioxide then rises in temperature and expands; as the pressure rises the disk ruptures, and gas escapes rapidly. This expansion, in the confines of the hole drilled into the coal seam, breaks the coal into large lumps.

Cardox also uses its sodium chlorate for the production of chlorine dioxide decahydrate. When kept below the freezing point, the decahydrate provides a convenient way of storing and shipping chlorine dioxide. It finds modest markets in the bleaching of flour.

Cardox has little influence on the sodium chlorate markets of interest to Pennsalt, and we have no indication that it is interested in entering those markets.

D. Imports and Exports

Before World War II, imports were an important factor in the overall market for chlorates. For example, in 1899 over 1400 tons of potassium chlorate were imported; by 1927 imports had reached 6700 tons. Lesser quantities of sodium chlorate were imported. Total chlorate imports steadily declined (except during the latter part of World War II), as Table IV shows.

Current chlorate and perchlorate imports are at a level comparable to that of 1946, but they account for less than 2% of total U. S. capacity. Detailed import figures for 1956 are also given in Table IV. Stockholm Superfosfat Fabriks AB of Sweden and Lonza Ltd. of Switzerland are probably responsible for the largest import volumes. The Swedish firm's ammonium perchlorate is acceptable for propellant applications. One of the major U. S. propellant manufacturers is trying to obtain approval from the Department of Defense to use this source. The perchlorate is being quoted by the Swedish Company at 30¢ per pound, delivered in New York. This compares very favorably with the

price (38½¢ per pound fob Henderson, Nev.) that the Navy is paying Ampot.

Exports of chlorates and perchlorates from the United States are not reported. They are believed to be quite minor in the over-all market.

[fol. 1120] This projects a 50% increase in usage by 1959 and another 12% increase by 1962. As we have said, the growth of chlorine dioxide bleaching will continue after 1959 and 1962, but it will do so at a reduced rate.

D. Marketing and Distribution of Sodium Chlorate to the Pulp Industry

1. Suppliers

There are now two major suppliers of sodium chlorate to the pulp industry east of the Rocky Mountains: (1) American Potash and Chemical Corp., which is selling through a contractual agent, the Solvay Division of Allied Chemical and Dye Corp.; and (2) the Oldbury Division of Hooker Electrochemical Co. To the best of our knowledge Ampot has no field salesmen selling sodium chlorate to the pulp mills.

Both Solvay and Oldbury have established strong positions. We believe that because it can supply more know-how on the generation of chlorine dioxide, Solvay has an advantage over Oldbury and a large share of the business. Since paper mills are generally anxious to have a second source of supply, they tend to distribute their business between the two.

The Foley, Fla., mill of Buckeye Cellulose Corp. has recognized Pennsalt as a supplier of sodium chlorate, but most of the mill people contacted do not know that Pennsalt produces sodium chlorate or that it is interested in pulp bleaching.

Other companies were occasionally mentioned as being interested in entering the production of sodium chlorate and selling to the pulpers. Two examples are Columbia-Southern Chemical Division of Pittsburgh Plate Glass Co., and Virginia Smelting Company.

2. Products

The process for the manufacture of sodium chlorate has been thoroughly developed, and it is possible to produce

high-quality material of a consistent composition over a long period of time. Competition based on product quality is therefore considered almost impossible. A new company entering this market could not expect to exceed the quality of its competitors.

[fol. 1121] One point of interest, however, has come up in recent months: the new Mathieson technique for the addition of sodium chloride to the chlorate in the generator. This technique has been described in the technical journals and tested at a number of the mills contacted. Because of the varied opinions presented in our field discussions, we feel that the real value of chloride addition in increasing the yields of chlorine dioxide has yet to be demonstrated. If some technique such as this were to be proved as effective as claimed, a new supplier offering it as a better product characteristic would have a means of improving his market position.

3. Technical Service

Technical service as a merchandising tool for selling sodium chlorate to the pulp industry has been handled most uniquely. At the initial stage of the development of the chlorine dioxide generating process, neither of the two leading concerns (Mathieson and Solvay) holding process patents was a seller of the principal raw material, sodium chlorate. They obtained revenue from their developments by charging royalties on the use of their process. This practice was soon abandoned, and both companies now provide free technical service to pulp mills interested in generating chlorine dioxide.

The technical service is excellent. It includes all stages of assistance from inception on. To the best of our knowledge, neither Mathieson nor Solvay includes any oral or written tie-in agreement for the sale of either chemicals or equipment with its technical-service efforts. Since both are producers and sellers of chlorine, caustic, sulfuric acid, and other pulp-mill chemicals, however, they expect some of these materials to be purchased from them.

Several individuals are looked upon as outstanding authorities on chlorine dioxide generation and bleaching. One of these men, John Schuber, is employed by the Solvay Division. Dr. H. W. Rapson, Professor of Chemical Engi-

neering at the University of Toronto and leading pulp-bleaching consultant to the paper industry, is under contract to Oldbury to provide technical consulting service to its customers. Of the two companies, we believe that Solvay may have a more active and effective technical-service division. These people are headquartered at Syracuse, N. Y., and are available for visits to pulp mills whenever required. Solvay has sent as many as five men to a mill for a period of a week or more on the occasion of a startup or some serious operating difficulty.

[fol. 1122] Oldbury offers a less complete technical service staff and relies heavily on the services of Dr. Rapson. A customer having difficulty or questions about chlorine dioxide generation or bleaching can obtain the services of Dr. Rapson by contacting personnel in Oldbury's technical department.

Mathieson also maintains a technical-service department, which operates from Baltimore and is believed to be comparable to or perhaps slightly more effective than that maintained by Oldbury. To the best of our knowledge, Mathieson has no arrangement with an outside consultant similar to Oldbury's arrangement with Dr. Rapson.

4. General Industry Purchasing Practice

Sodium chlorate is a standard industrial chemical of moderate volume importance to pulp mills. To them its most important aspect is that there be a good assurance of supply. An inability to obtain sufficient material would mean the shutting down of a bleach plant, and if an integrated mill were involved, possibly the shutting down of the paper machines. For this reason, most purchasing agents split their sodium chlorate purchases between Solvay and Oldbury.

Sodium chlorate is shipped in tankcars carrying approximately 80-90,000 lb, in dry crystalline form. Since the moisture content is low and of little importance to the pulp mills, they do not check for it with each shipment. The consensus among the purchasing agents we contacted was that when the sodium chlorate arrives it is approximately 0.5% moisture. This figure checks with the suppliers' specifications, which indicate a purity of 99.5%. The tankcars, used

only for the shipment of the chlorate, may be owned by either the vendor, the railroad, or the purchaser.

We made a specific effort to determine ICC shipping regulations for sodium chlorate and to verify whether they were being adhered to by the industry. We found that a general ICC shipping regulation (No. 103 and 103W), concerning chlorates as a category, states that if these materials are to be shipped in tankcars they must be wet down with water to 10% of their weight. Superseding this regulation because it is more specific is one dealing with chlorate of soda. It states that chlorate of soda can be shipped in tankcars or in tight, sift-proofed hopper cars; it does not mention wetting down the material. Therefore we believe that it is *not* necessary to wet down sodium chlorate for shipment and that wetting down is not an established practice in the industry. The reference for the above information is Campbells Tariff #9, item 73.163 (7).

[fol. 1123] The contracts under which sodium chlorate is sold are standard industrial-chemical contracts. They generally run for one year, with quarterly price-adjustment clauses, and are not considered binding by either the vendor or the purchaser. Sodium chlorate is sold to the pulp industry on terms of fob shipping point, with freight equalized. As we pointed out in Section II-C, there are now four producing locations for sodium chlorate, each of which serves as a freight-equalization point.

Certain aspects of the practice of selling sodium chlorate on a freight-equalized basis may be of some interest. The purchasing agents of several mills stated that they might be interested in giving a part of their chlorate business to a new supplier if that supplier were to cause a favorable shift in the freight-equalization base-point situation as a result of its plant location. To force the other suppliers to recognize such a shipping point, it would have to make sizable shipments. By strategically locating a chlorate plant with an eye to the freight rate, a new supplier could strengthen its initial position in the market.

5. Value of Full Product Line

Our field contacts among pulp-mill purchasing agents and operating personnel indicate that a new supplier of

sodium chlorate will not gain much by offering a full line of pulp-mill and bleaching chemicals. As long as the supplying company has a satisfactory reputation in the pulp industry, it makes little difference whether it is able to provide one or more pulping chemicals. One purchasing agent stated that such a product line might actually work to the supplier's disadvantage, since his company does not like to place an excessive dollar volume with any one supplier. The fact that a potential new chlorate supplier was already accounting for a large dollar volume might be justification for its not being given the chlorate business.

However, one possibility might become interesting if the use of a chlorine dioxide bleaching stage followed by a hydrogen peroxide bleaching stage were to grow. It might be advantageous from a supply and from a technical standpoint for a company to sell both sodium chlorate and hydrogen peroxide (a chemical already offered by Pennsalt in small quantities), perhaps because the company handling both might well be able to develop experience on which to base improved technological approaches to these two phases of the bleaching sequence. If a company decided to offer both chemicals and were the first to do so, it might well claim to have the most advanced know-how in the combined use of the two stages. We believe that it would thus have an excellent basis for entry into the market.

[fol. 1124] 6. Prices

Prices for sodium chlorate vary little throughout the country. We obtained the following price information in our survey of the various geographic regions:

Solvay—8.25¢/pound fob shipping point (Henderson, Nev.)

Oldbury—8.15¢/pound in sellers' tankcars, fob works
—8.09¢/pound in buyers' tankcars, fob works

The only noticeable difference is that a purchaser can obtain a small reduction by providing his own tankcars. We have no reason to believe these prices will change within the next two years.

7. Pennsalt's Reputation in the Pulp Industry

We were asked specifically to determine Pennsalt's reputation in the pulp industry, and to obtain information on the reaction to Pennsalt's removal of itself as a supplier of chlorine. To the best of our knowledge, the company enjoys a satisfactory reputation; it is looked upon as a reputable and successful supplier of industrial chemicals, and there is no antagonism toward it as a corporation. It was clear that few of the people we contacted were aware of Pennsalt's interest in sodium chlorate on the West Coast. As we have said, one mill contacted in the Deep South purchases chlorate from Pennsalt.

8. Problems of Entering a Small, Well-Established Market

The outlook for the future consumption of sodium chlorate by the pulp industry is favorable. The primary problem facing a company entering this business is that of competing against two firmly established suppliers. As we have indicated, both Solvay and Oldbury have highly developed technical-service facilities and a great deal of information on chlorine dioxide generation and pulp bleaching. A new supplier might provide a technical-service facility equal to that offered by the present suppliers, but it might find it difficult to surpass them. The fact that a new supplier had a background in this field in another part of the country—as Pennsalt has—might not be well known in the new market areas.

[fol. 1125] There are several other ways in which a company could establish itself: It might build up a topnotch technical-service group, to provide a product equal to those already on the market and to have an active sales force calling on pulp mills regularly. Certainly Pennsalt's arrangement with Olin Mathieson would help it enter the market. A third possibility might be the development of some improvement in chlorine dioxide generation or pulp-bleaching techniques—one that could be carried out in existing equipment. It must be remembered, however, that mills will be reluctant to make major changes in their installed chlorine dioxide systems without very strong justi-

fication, because of the large investments they have already made. Nevertheless, any such process improvement might enable the new company sponsoring it to gain a firm foothold in the industry.

If any of these three approaches were to prove effective, the new supplier could gain a satisfactory share of the market. This share would partially depend on the acceptance of the process innovation or technique. The industry seems to feel strongly that a new supplier would need some "added attraction" to obtain more than a token portion of the existing chlorate business.

[fol. 1126] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 96C

Pennsalt Chemicals
Technical Division
Commercial Development Department

10/16/57.

Index

	Page
Introduction	1
Survey Objectives	2
Summary and Conclusions	2
Recommendations	9
Appendix	
Pennsalt Personnel Interviewed	13
Comments on Solvay Process Technical Service	14
Arthur D. Little, Inc. Report	

[fol. 1127] Introduction

Western Division entered chlorates manufacture in 1941. In subsequent years, particularly in postwar years, growth of National markets frequently stimulated Pennsalt to consider manufacture and sale in the East. The record is not clear on reasons for abandonment of these studies. In the early 1950's the company held a certificate of necessity under option for about eighteen months during the Korean emergency but decided not to proceed. More recently, a specific venture in Puerto Rico was considered but then deferred.

In early 1957, Mr. Drake directed that a study be undertaken to determine for the last time the positive means, if any, that Pennsalt should employ to establish for itself a position in the manufacture of chlorates in the East. An initial economic analysis shortly thereafter reported marginal profitability for such a venture at Calvert City and another Eastern location for 15,000 tons and 20,000 tons per year capacity. As a supplement to that analysis, Mr. Drake directed that a market survey be undertaken.

In preparation for this survey, an audit was made of our existing knowledge and experience in marketing and markets of chlorates and perchlorates. Many segments of the company contributed. The Western Division provided major assistance, particularly in pulp and paper, in agricultural uses, and in the lore of these commodities. From this audit it was apparent that major effort should be directed to pulp and paper markets. For a number of reasons, primarily shortage of personnel and desire for anonymity, bids were solicited from two major consultants, and from these A. D. Little, Inc. was hired. They directed their major efforts to pulp and paper, making field calls on all major companies East of the Rockies. Lesser effort was placed on perchlorates, on matches, and the minor markets. In agricultural markets, they were directed to provide only file reference information from other A.D.L. surveys. Our Western Division provided us and maintains, in our opinion, the very best current information on this market.

The results of A. D. Little's study are bound into the attached report. Findings should be evaluated as:

pulp and paper— high degree of reliability, checks with and elaborates on private information provided by Western Division. The only major controversial area is the future position of low cost peroxide.

[fol. 1128]

agricultural— forecasts are consistent with Western Division thinking; detailed information and knowledgable appraisal by A.D.L. is lacking.

perchlorates— reliability restricted by need for access to classified information. Better perspective and appraisal subsequently provided in classified report by Technical Division.

other uses— reliability sufficient for gross growth analysis.

forecasts of demand and capacity—A.D.L. tabular estimates were corrected, amended, amplified and analyzed by Market Research Section.

I. Survey Objectives

This market study was conducted to determine the extent of Pennsalt's opportunities to establish a position in the Eastern chlorates markets.

II. Summary and Conclusions

A. Sodium chlorate is a growth chemical

During the period 1945 through 1955 sodium chlorate production increased from 20,000 tons to 56,000 tons at the average rate of twelve percent per year. Demand in 1957 and 1962 is estimated at 67,000 tons and 117,500 tons respectively. These estimates indicate a continuation of the twelve percent average annual growth.

B. Sodium chlorate prices are due to increase

The price of sodium chlorate will increase in all categories $0.01 per pound by June, 1959. An increase of one-

half cent is expected by mid 1958 to be followed by an additional one-half cent by mid 1959—this represents a total increase of about eleven percent.

[fol. 1129] C. The sodium chlorate market is well diversified

At the present time sodium chlorate has four major uses —the manufacture of chlorine dioxide for wood pulp bleaching, the direct application as an agricultural herbicide and defoliant, the manufacture of potassium chlorate for matches, and the manufacture of perchlorates as fuel oxidizers in rockets. There are many minor uses and a few unpredictable but promising new uses—in the processing of uranium and vanadium ores, in the production of battery grade manganese dioxide, and in the manufacture of Pennsalt's PF (perchloryl fluoride).

Historically, the sodium chlorate end-use pattern has shifted about every five years with the growth of new uses.

Approximate End Use Patterns

(Percent of total sodium chlorate production)

Use	1940's	1952	1954	1957	1962
Chlorine dioxide bleaching	0%	4%	30%	52%	50%
Potassium chlorate	40	21	18	12	8
Herbicide & defoliant	45	52	45	26	17
Perchlorates	5	12	2	6	23
Others	10	11	5	4	2
	100%	100%	100%	100%	100%
Total $NaClO_3$ production, tons	—	40,000	40,000	67,000	117,000

Principal growth during the 1957-1962 period is expected to come equally from the increased use in producing chlorine dioxide for pulp bleaching, and in manufacturing perchlorates for fuel oxidizers in solid propellant rockets.

D. Sodium chlorate markets are regional

Seventy-five percent of the National market for sodium chlorate and its derivatives is east of the Rocky Mountains. About fifty percent of the National market or sixty-five percent of the Eastern market is in the Southern States. No significant change in this distribution is expected through at least 1962.

[fol. 1130] The geographic concentration of new producers and consumers, particularly in the pulp and paper industry, tends to favor a Southern plant location to minimize transportation costs on this freight equalized chemical. The need for cheap electrical power tends to further limit possible plant sites.

Calvert City, Ky., appears to be a good location which is about as far North as is economically feasible. A good alternative site probably exists on the Southern edge of the TVA power area in Louisiana, Mississippi, Alabama, Georgia, or Tennessee.

A completely different alternative appears to exist in an offshore site in Puerto Rico. Here it appears to be a problem of balancing tax advantages against freight and power costs with the latter probably controlling. Relatively cheap (7.5 mill) power may be available.

The possibilities of a Canadian operation appear to have been pre-empted by Canadian producers with well distributed plants whose total capacity is about two-thirds of U. S. planned capacity. On the other hand, Canadian producers do not appear to offer threats of invading U. S. markets under current tariff (¾¢ per lb.) and freight rates.

E. Two markets dominate the growth for sodium chlorate in the East

Of the total 35,000 tons increase in Eastern demand, 1957 to 1962; pulp and paper and perchlorates represent 31,000 tons.

Demands for chlorate in the chloride dioxide *bleaching of pulp* is expected to increase in the East from 30,500 tons 1957 to 51,500 tons by 1962. Twenty-five mills are currently using this bleaching process. In addition one expansion and seven new installations will shortly be completed. By 1962, an additional eight mills will install generation facilities. Attesting to the strength of demand for bleached stock is the fact that chlorate demand has not slackened despite the generally depressed condition of the pulp and paper industry. Current producers and suppliers appear to be well aware of the potential for this and related markets in view of their timely announcements and on stream plans for expanded and new capacity in the South (Hooker [fol. 1131] and American Potash respectively). Backed

by strong technical service crews, Solvay and Mathieson merchandise and engineer their respective generating systems and generally handle a wide variety of customer problems despite the fact that Solvay is a chlorates resale agent for Ampot and Mathieson does not sell the product. Companion products are the key to this keen competition, particularly in the South. Chlor-alkalis, ammonia, soda ash and hydrogen peroxide requirements continue to be viewed by the mill purchasers as alternatives for apportioning a balanced share of business among competitive suppliers. Although chlorine dioxide demand is expected to continue to increase and dominate the high brightness field, hydrogen peroxide may pose some threat if major price cuts develop. No agreement now exists among users or among suppliers on the extent, if any, of this possibility. Technical advantages are not yet apparent; economics would require justification for pulp mills to mothball relatively new generating and treatment equipment valued at $1,000,000 to $3,000,000 per mill to shift to peroxide. No trend is yet apparent for mills to delay plans for new chlorine dioxide generators. The follow through demand appears to be strongly in favor of chlorine dioxide.

The chlorates requirements for *perchlorates (expressed as ammonium salt) in newer military uses* will increase from the current 3,000 tons per year to 27,000 tons by 1962. These needs will be about evenly split East and West if the military realizes its objective to establish a second corporate source of supply in the East. Existing capacity is 20,000 tons of the sodium perchlorate intermediate of which 18,000 tons is considered economic. Navy owns 6,000 tons capacity and American Potash 12,000 tons with the latter operating both plants. Capacity for conversion of this intermediate to various salts is 16,500 tons for ammonium, 5,500 tons for potassium, negligible for lithium. Of this conversion capacity 14,500 tons ammonium is considered economic. This plant is Navy owned—American Potash operated. Process improvements in type anode and in cell design to be completed under Navy sponsorship in 1958 are expected to result in major revisions of existing plants. This coupled with the expected increase in military demand will create an opportunity for new producers to enter this field particularly in the East at no great disadvantage. The apparent

capacity increase needed to meet 1962 requirements is about 9,000 tons sodium perchlorate and conversion capacity 12,500 tons ammonium salt. Should the Navy choose not to [fol. 1132] continue to own capacity, an additional 6,000 tons sodium chlorate and 14,500 tons ammonium would be available for private ownership.

The military's estimates of their perchlorate requirements appear to be sound. Based on consumable needs, the material will be used by the three services in a wide variety of devices whose propulsion systems are not readily susceptible to replacement by other non-perchlorate system. Mobilization and stockpile requirements are not included nor are the needs for developmental testing. Furthermore, the majority of the capacity to process and utilize the perchlorates is already installed. Greater uncertainty exists, however, in establishing the needs for particular salts or perchlorates. Current preference is for the ammonium salt, but replacement of all or part of this by the lithium salt is possible over the next two to four years. Development programs are underway. However, the military is not yet certain that lithium salts will be accepted on a wide scale. Performance advantages may be offset by the substantially higher costs and by the greater technical and engineering problems of handling and fabrication.

F. Additional sodium chlorate production capacity is needed

In view of projected 1962 demand and currently estimated capacity (117,000 tons and 87,000 tons respectively) there exists a need for 30,000 tons additional National capacity.

Analysis of Eastern demand versus capacity in 1962 (87,800 tons and 45,000 tons respectively) indicates a need for 42,000 tons of new Eastern capacity. However, since the 1962 Western capacity of 42,000 tons exceeds projected Western demand by 12,000 tons it can be assumed that Western plants, Ampot and Pennsalt, will absorb the freight penalty and "export" their 12,000 tons excess into Eastern markets. If the Eastern producers accept and permit this invasion of their natural marketing areas, the net Eastern sodium chlorate deficit is reduced to 30,000 tons. This 30,000 ton deficit offers several possible manufacturing combinations.

[fol. 1133]

Estimated Captive Versus Merchant Demand for Sodium Chlorate

Market Area	Sodium Chlorate Demand, As Such, Tons	Sodium Chlorate Equivalents, Demand in other forms, Tons	Totals Tons
Eastern			
1962	64,000	23,000	87,000
1957	41,000	11,000	52,000
Increase	23,000	12,000	35,000
Southern			
1962	43,000	12,000	55,000
1957	27,000	2,000	29,000
Increase	16,000	10,000	26,000
U. S. A.			
1962	79,000	38,000	117,000
1957	53,000	14,000	67,000
Increase	26,000	24,000	50,000

Inasmuch as potassium chlorate and perchlorates are not now manufactured on a major scale east of the Rocky Mountains, as much as 23,000 tons of the needed capacity could be converted captively to these upgraded forms to supply the projected total 1962 Eastern markets for these chemicals. Of this, about 12,000 tons could be converted to supply Southern markets. It should be noted that about thirty-two percent of National, twenty-six percent of Eastern, or twenty-two percent of Southern sodium chlorate consumption is captively used to produce saleable upgraded chemicals. In addition to these conversion opportunities as much as 23,000 tons will be needed in the expansion of direct use markets in the East for sodium chlorate.

In view of these alternatives, manufacturing combinations for a new producer range from sodium chlorate exclusively for merchant sale through sodium chlorate exclusively for captive conversion.

G. Pennsalt can obtain a sound chlorates position in the East

Pennsalt enjoys a unique combination of assets which would facilitate entry into the manufacture and sale of chlorates and perchlorates east of the Rocky Mountains.

[fol. 1134] 1. Pennsalt of Washington has engineering and operating experience in the commercial production of sodium and potassium chlorates. In addition, laboratory scale work has been conducted in new processes for perchlorates using a platinum covered tan-

talum anode, and in recovery of platinum. Further, Technical Division has developed a new lead dioxide anode for more economic manufacture of perchlorates.

2. Pennsalt personnel have practical familiarity with the current technology on the major uses for these chemicals—wood pulp bleaching, weed killing, defoliating, and classified rocket fuel applications.

3. Pennsalt's sales personnel are successfully marketing companion products (ammonia, caustic soda, chlorine and hydrogen peroxide) to the major sodium chlorate consuming industry, the pulp and paper industry.

4. Pennsalt has an assured initial sales base with certain Eastern accounts; for example, 5,000 tons of sodium chlorate annually to Chipman for herbicide uses.

A reasoned estimate of Pennsalt's 1962 eastern USA sales of chlorate chemicals is 25,000 tons of sodium chlorate equivalents after three operating years.

Chemical	1962 Sales, Tons		Sodium Chlorate Equivalent, tons
Sodium chlorate			
Pulp and paper	10,000		
Agriculture	5,000	15,000	15,000
Potassium chlorate			
Matches	4,000		
Pyrotechnics	400	4,400	4,000
Perchlorates (Ammonium, etc.)			
Propellants	6,000	6,000	6,000
Total			25,000

These estimates were made without the benefit of sales [fol. 1135] management guidance and should therefore be considered as a planning base only pending more accurate sales forecasts.

H. Timing of entry and announcement is important

All projections tend to indicate that sodium chlorate supply and demand will be in balance at 87,000 tons per year in early to mid 1959. It appears that a new Eastern producer should plan to start-up no later than early 1959 with full operation being scheduled for early 1962, three years later. Interim large scale operations may well be possible at the competitive expense of the Western producers.

There is every indication that present manufacturers know the market potential. They have shown a fine sense of timing in planning and announcing expansions. In view of both the competitive situation and the tight time schedule indicated, an early decision on an Eastern chlorates venture is needed. This decision should be made public as soon as possible to pre-empt a share of the market. At least three other companies including Columbia-Southern and Virginia Smelting are known to be studying similar ventures.

III. Recommendations

The recommendations of this report follow as answers to the questions posed in the original directive for this study (ref. W-1 memo to L-9 1/22/57):

1. "Should Pennsalt have a position in the manufacture of chlorates in the East?"

Yes. This venture offers Pennsalt an opportunity to exploit on a National basis know-how and technology now confined to Western Division operations and to our accumulated assets from past R & D programs. Further, it provides an opportunity to expand upon our established sales position in the East by extending sales of companion products to territories not now being intensively covered. Manufacture of chlorates also provided an opportunity for manufacture of perchlorates, which in turn would provide us with a long sought entry into chemicals for the rockets and missiles industry. Finally, manufacture of chlorates would permit us to further expand and more fully utilize [fol. 1136] our Calvert City facilities, or alternately, it could provide the nucleus for operations at a new plant site.

2. "If so,

(a) What should the position be?"

The minimum position would be to manufacture and sell sodium chlorate. A further opportunity exists to produce potassium chlorate. A major, but more speculative opportunity exists to produce ammonium perchlorate and other salts required for military needs.

(b) "Where should a plant (if any) be located?"

Ultimate determination of exact plant site can come only after final decision has been made on the particular products to be produced in such a plant. Further, power and transportation to markets to be served, and in a special case, tax advantages are important determinants.

From the point of view of market centers Calvert City appears to offer a real advantage, particularly if we are to attempt to penetrate the North Central and the Northeastern pulp and paper markets. Calvert City would also presumably provide an advantage if we were to market potassium chlorate to the match industry, whose major market appears to be on the arc from St. Louis eastward up the Ohio River. A deep South plant site on the periphery of TVA power ranging from eastern Georgia through Arkansas would provide particular strength for marketing to the pulp and paper industry. Several mill purchasers would find a new basing point to work to their advantage. Furthermore, this Southern area would be desirable if we were to enter perchlorates. A special situation may well exist in Puerto Rico. Water transportation costs might provide an advantage over more northerly locations. Tax advantages could prove to be substantial. Public power rates, on the other hand, are believed to be prohibitive. However, with the substantial increase in industrial activity it is very likely that a proper combination in partnership with other companies could yield low cost power and steam. It is quite possible that the military would not view Puerto Rico with favor if we were to consider perchlorates manufacture there.

[fol. 1137] (c) "What size plant (if any)?"

A 25,000 tons plant for manufacture of sodium chlorate appears to be justified from our market research findings. Of this total capacity 15,000 tons is visualized going on a direct sales basis to industry; 4,000 tons could be utilized to produce the potassium chlorates, and 6,000 tons could be utilized to manufacture perchlorate salts for defense needs. Should the latter two ventures prove to be either uneconomic, or in the final analysis too speculative, the recommendation is that a base plant of 15,000 tons be considered

primarily to service the pulp and paper industry (10,000 tons per year) and agricultural uses (5,000 tons per year).

These recommendations, from a marketing research point of view, can be considered conservative estimates. In fact, if the forecasts are correct, an additional 5,000 tons will be required in the Eastern market area by 1962. Further, if a producer were to aggressively seek the full share of the Eastern market available, an additional 12,000 tons might be gained at the expense of the Western producers selling in the East. Therefore, the recommended total capacity is approximately 17,000 tons below what could be considered full growth potential for the Eastern markets through 1962.

From another point of view, a substantial reduction in perchlorates demand below that now forecast could reduce the estimates in Eastern markets by as much as 12,000 tons, which would have the effect of leaving 5,000 tons unfilled potential in the East.

3. "If a plant cannot be justified in accordance with our capital investment policy, either alone or jointly with a partner such as Olin Mathieson, what should Pennsalt's position be in regard to chlorates in the East, and what will be Pennsalt's future in this field?"

The answer to this question is beyond the scope of this market study. We were instructed not to seek or investigate special situations, such as partnership with Olin Mathieson, or with any of the major consumers, or with the Government. Further, this answer can be provided only by a detailed, realistic economic analysis. We recommend [fol. 1138] specifically:

1. Product, plant, and marketing cost estimates be made for the various possible plant combinations utilizing more recent price and market information of this report and the latest technology available within our organization and from the Government. Further, marketing costs should be determined from the ground up on an incremental basis rather than as a percentage of sales. Particular attention should be given to the marketing and distribution economies realizable through selling our full line of products to the Southern pulp and paper industry. Special attention should be given

to the cost for establishing and maintaining a strong technical service force.

2. Specific to perchlorates we recommend that conversations be initiated immediately with the Government to determine near-term opportunities for our Western Division to participate in the expanding needs of the perchlorates program, and ultimately the opportunities of an Eastern operation to meet the 1962 requirements.

[fol. 1139] Some Comments on Solvay Sales, Application Research and Technical Service in the Pulp and Paper Field

Aims of Sales and Technical Service Effort:

Solvay has a large and highly competent technical service team operating in the pulp and paper field. They back-up the full line (generally non-technical) salesmen operating in limited geographical areas who handle sales to pulp and paper mills.

A rough estimate of Solvay sales to the pulp and paper industry is $12,000,000 to $18,000,000 per year. Their present participation is great in New England, New York, the South, Minnesota, Wisconsin, and Ohio, but relatively small on the West Coast and in Canada.

Although a major portion of Solvay paper technical service effort is directed toward the design and installation * of chlorine dioxide bleach units, the actual sale of sodium chlorate is a relatively minor goal. Sales and technical service aims are, in rapidly decreasing order of importance:

1. To hold or improve the sales position at the pulp mills on four very important Solvay products:

chlorine; soda ash; caustic soda; hydrogen peroxide

(This is probably more important than all the other aims put together.)

2. To trade against bag reciprocity. Many of Solvay's largest customers are large factors in the multiwall bag industry. They are fighting violently to gain or increase

* Technical help only, not a construction contractor.

participation in Allied's bag purchases. Expensive technical service work by Solvay has held off a large part of this pressure to divide purchases to a point where they would have no position with any supplier.

3. To collect commission on chlorate sales. American [fol. 1140] Potash pays Solvay a commission on all (?) sodium chlorate going into Solvay ClO_2 bleach units. This commission may be as high as 15%. Solvay views this commission as a means of partially defraying engineering and other costs in installing chlorine dioxide bleach units for customers of ash, caustic, chlorine, etc. Chlorate is shipped direct from Ampot stock to the customer. Solvay does no warehousing, but does handle billing and credit.

4. To help General Chemical sell Sulfuric Acid and Alum. Plants using Solvay ClO_3 units units are requested, but *positively not pressured* into buying the H_2SO_4 they need from General Chemical Division. This is never pressed, however, when some ash, caustic, or chlorine business might be lost.

5. To help Nitrogen Division sell Methanol. When Solvay first entered the ClO_2 business they sold methanol from the South Point, Ohio plant and pressed very hard for this since it was considered more profitable than chlorine or alkalis. Since the spin-off of Nitrogen Division there has been very little interest in helping Nitrogen move their alcohol.

Solvay Sales Force—Covering the Pulp and Paper Industry

Solvay Process Division has about ninety field salesmen operating under thirteen branch sales offices. Those that have over one-third of their sales in the pulp and paper industry are indicated below by State of operation and age.

State	Age	
Maine	26	
New Hampshire	60	
New York (City) Branch	66, 32*	All non-technical or B.S. men who went into Sales right after college and/or the Service
New York (State—Syracuse) Branch	66, 38*	
New York Executive Office	60, 48*	
Philadelphia	45	
Florida	46*	
Texas	55, 45*	
Wisconsin	52	
Minnesota	58	

* Possibly less than one-third of sales here

[fol. 1141]

West Coast	Hardly any sales here except through jobbers and brokers (do not equalize on soda ash, caustic and chlorine)
Canada	Brunner Mond sells Canadian produced soda ash, Allied International sells U. S. production
Mexico	Jobber and broker

Solvay Technical Service Organization—Pulp and Paper Section

The Pulp and Paper Section of the Solvay Technical Service Organization is probably its best. They are well known in the field and welcome in most of the mills. A brief description of their ages and duties at full manning are indicated:

1. *John Schuber*, Manager (age 55)—John is a technical leader in the pulp and paper field. He has a first name friendship with the executives and operating personnel of most of the mills. He often consults free of charge on plant location, machinery purchases, etc.

2. *Don Batchelor* (36)
3. *Ed Nissen* (33)
4. *Dave Clark* (32)

These are Mr. Schuber's field men. In collaboration with two or more men from R. & D. they consult on engineering work, etc. and then take up residence at a paper mill for several weeks during the later stages of installation and the start up of ClO_2 bleaching process. (No charge is billed to the customer). They are thoroughly familiar with mill practices and some of them have worked in paper mills during the early stages of their careers.

5. *Bill Kraske* (36)—Bill was John Schuber's right-hand man. He left Solvay to join Celanese a few years ago because he and his wife objected to the amount of travel involved in his work.

6. *Ted Swain* (33)—a really effective young technical service man, especially useful on complaint adjusting.

7.-10. Four chemists—often lent by R. & D. to Technical Service to reside at the mill during ClO_2 start ups.

[fol. 1142] 11.-15. Four or five technicians.

Relations with American Potash & Chemical

Very little information is available. From time to time, before the Hooker merger, Solvay spoke to Oldbury about

chlorate distribution. Ampot appears to give good delivery service but does not visit the accounts. It is not impossible, however, that Pennsalt in the East might be able to arrange with Solvay for representation on a partial supplier basis. After all, Solvay is currently asking mills to operate under a very unsound purchasing policy—namely—to purchase total requirements from a single supplier of a material that is produced by only three companies. Solvay would never hesitate to use this argument as a means of getting into an account where they were not currently participating.

Application Research and Technical Service Laboratory

At the Syracuse soda ash plant Solvay has a large well-equipped pulp laboratory which is staffed by four or five technicians together with a team of four chemists who have become experts in ClO_2 plant installations. These latter men work on application research problems when they are not in the field on ClO_2 plant installations. The laboratory is strong in pulping and bleaching but is not equipped to do too much work in papermaking.

[fol. 1143] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 97

Plaintiff's Land Exhibit 6

Chlorates—East
November 8, 1957
Mr. G. R. Lawson
H. C. Land
B24 G11

For many years we have felt that we should manufacture chlorates in the east as a chemical to be sold to pulp and paper accounts. As you know, we are now selling some of the Portland production, although this is not on a sustained basis.

Mr. Grogan has felt very strongly about such a plant and has had preliminary discussions with people such as Olin-

Mathieson on the possibility of a joint venture. I am sending you a copy of the recent market study which points out that we have underestimated the amount of chlorate that can be sold in the east. The only way we are going to be able to justify a plant at Calvert City or other suitable location is to be able to sell to customers in the neighborhood of 15,000-20,000 tons per year. I believe that based upon this market study you may be able to forecast sales of this order of magnitude within a 3 to 5 year period after plant facilities were finished, provided that we could promptly initiate a sales program based upon material from the west, backed up with a definite commitment for plant facilities in the east. I would like to have you and your people review this market report and give me an estimate of your probable sales to customers.

In addition, I think we must consider the possibility of using 5,000 tons per year of chlorates in the manufacture of perchlorates, although I do not need your comments on this phase of the work.

——, ——

HCL:mk

[fol. 1144] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 98

Plaintiff's Grogan Exhibit 4

Sodium Chlorate
November 15, 1957
Mr. G. R. Lawson
G. D. Grogan
B24, J4

Based on the Sodium Chlorate figures presented in the Arthur D. Little Report, I should think that by 1959 we could sell 7,000 tons and by 1962, 15,000 tons to the pulp and paper industry in the southeast and southern states. This is based on the following assumptions:

1. We would have a plant by the end of 1958.

2. Additional technical service personnel and laboratory backing would be required.
3. The plant would be located in the southeast
4. The present consumers of Sodium Chlorate in this area are not tied up on long-term contracts.
5. Some arrangement to take advantage of the Mathieson system of chlorine dioxide generation or some similar arrangement is in effect.

I don't think that the sales estimate in the report pertaining to Potassium Chlorate—4,000 tons for match manufacture—is at all realistic.

GDG:k

[fol. 1145] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 99

Subject: Chlorate Opportunities East of the Rocky Mountains—Market Study Report
Date: November 18, 1957
To: Mr. R. W. Sloan
From: R. J. Eastman
Copies: D-11, S-12, L-9, L-14, W-1, M-93, W-17, S-44, G-27, E-27

On Wednesday, November 6, 1957, a meeting was held to discuss the subject market study report dated October 9, 1957. Attending were:

Shanaman, F. C.	LaLande, W. A.
Land, H. C.	Willits, W. C.
McCoy, G.	Woodard, A. S.
Sloan, R. W.	Gall, J. F.

Eastman, R. J.

1. L-9 reviewed the history of Pennsalt's sodium chlorate considerations pointing out the relatively low return on investment. The best return, about 20%, is on a 20,000 ton per year plant. The calculations include the projected 1¢ per pound price increase, but do not include any allo-

cated portion of the current fixed investment at Calvert City.

S-12 pointed out that Ampot's new plant fixed capital investment is about $350.00 per annual ton, and that Hooker's plant cost about $315.00 per annual ton. S-12 believes Pennsalt could construct a sodium chlorate plant for no more than $300.00 per annual ton. L-9 pointed out that current estimates indicate a cost to Pennsalt of about $320.00 per annual ton.

2. The projected price increase discussed on page 2 of the subject report was examined. S-12 reiterated his belief in this projected increase and attributed it to general market conditions and Hooker's desire to realize a better return on its estimated $19.8 million purchase price for Oldbury*.

3. The basis for estimating a 30,000 ton increase in Eastern sodium chlorate demand during the period 1957-1962 was discussed. S-12 expressed the opinion that Western producers could not economically compete for Eastern markets, and that the Colorado/Kansas area would be the probable East/West dividing line. This lack of Western [fol. 1146] "importation" into Eastern markets increases the projected sodium chlorate deficit by 12,000 tons to a total of 42,000 tons (see page 6 of the subject report).

4. With respect to the direct sale of sodium chlorate in the East, L-9 asked L-14 whether Industrial Division Sales could capture this expanding market. L-14 stated that Industrial Division could capture from 5,000 to 8,000 tons of the existing sales and some portion of the expanding demand, particularly in the pulp and paper industry. L-14 requested additional time to enable his people to analyze the sales potential in more detail (see pages 8 and 9 of subject report). In addition to this 5,000 to 8,000 tons, S-12 has stated his belief that Pennsalt could sell as much as 5,000 tons per year into the Eastern agricultural markets through Chipman (see page 8 of the subject report). The total immediate sodium chlorate market available to Pennsalt appears to be from 10,000 to 13,000 tons per year. To this must be added some portion of the 21,000 tons per year projected growth for pulp and paper markets in the East.

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* 450,000 shares of Hooker's stock at $44.00 per share.

5. The captive conversion and sale of products based upon sodium chlorate were discussed. Potassium chlorate was considered briefly, with S-12 stating his belief that Pennsalt had little opportunity to sell potassium chlorate in the East. This requires more discussion.

6. Ammonium perchlorate was discussed in detail at the request of L-14. G-27 stated that the Government projections of ammonium perchlorate demands as presented in the subject report were recently confirmed to him by the U. S. Navy. These projections are virtual commitments for the years 1958, 1959, and 1960. For the years 1961 and 1962 the estimates are less firm but probably represent minimum needs. Whereas earlier information from the Navy used in the subject report showed their preference for an Eastern plant site, G-27 reported that more recent Navy thinking would tend to indicate a preference for a new plant in the West.

G-27 reported that no Government funds are available for perchlorates plant construction, but that "encouragements" would take the form of a two-year purchase contract. The possibility of obtaining a Certificate of Necessity was not discussed.

S-12 stated that Western Division's Portland Plant could divert 2,000 tons per year of sodium chlorate for the manufacture of perchlorates. From past experience, this production of ammonium perchlorate at Portland could probably start in late 1958.

Consensus was that ammonium perchlorate prices would probably have to be reduced from the current 38½¢ per pound, due to the pressure for price reduction by the Navy's [fol. 1147] captive ammonium perchlorate plant. G-27 and S-44 stated that the Navy is expecting lower prices, but that the exact level is unknown. L-14 observed that the perchlorate situation was less firm than he had believed.

7. The order of magnitude of the total investment in a chlorate/perchlorate venture indicates that Pennsalt would probably need a partner. Olin Mathieson and others may be interested.

8. All persons attending the meeting agreed that timing is an important consideration in this proposed venture. S-12 and L-14 pointed up the importance of timely action in securing a position in the pulp and paper industry. G-27

and S-44 cited the growing industry interest in supplying perchlorates for Government needs.

9. Next steps to be taken:

a) L-14 will prepare firm sales estimates from the data in the report.

b) L-14 will explore the partnership idea with Olin Mathieson.

c) W-17 will prepare up-dated cost estimates. These estimates will be for 25,000 to 30,000 ton per year sodium chlorate plants at existing plant sites. Rough estimates will be prepared for a 6,000 ton per year ammonium perchlorate plant.

d) W-1 will prepare a study based upon some form of partnership with 50% of the capital requirements being borrowed at 6% interest.

e) When these studies are completed a second meeting will be held.

RJE/AKK RJE

[fol. 1148] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 100

Subject: Sodium Chlorate—Eastern Plant
Date: November 19, 1957
To: Mr. William P. Drake
From: W. A. LaLande, Jr.
Copies: G27, L14(x), M93, S12(x), S44, W1, W17

The attached letter from W17/L9, November 19, 1957 gives the data requested of Technical Division in the meeting on November 6.

WAL:fn

Attachment

[fol. 1149] Copy

Subject: Chlorate Plant—Estimates
Date: November 19, 1957
To: Dr. W. A. LaLande, Jr.
From: A. S. Woodard

As requested, by extrapolation of the data contained in Mr. Heitman's reports of February 8th and February 20th on chlorates, we have estimated the capital cost, manufacturing cost, and profit for a 25,000 ton per year sodium chlorate plant at Calvert.

Fixed Investment	$6,320,000
Working Capital	935,000
Total	$7,255,000

Assuming the net selling price of $9.00 per cwt., as contained in Mr. Heitman's report, we estimate that the returns on investment are as follows:

Return on Fixed Investment	18.3%
Return on Total Monies	15.9%
Return on Sales	25.7%

If the selling price is $10.00 per cwt., the net profits are as follows:

Fixed Investment	25.4%
Total Investment	22.2%
On Sales	32.2%

We have also estimated the 10 year economic projection assuming that 50% of the total capital were borrowed at 6% interest. Assuming $9.00 per cwt. sales, the return before taxes on the equity capital is 23.6%; assuming $10.00 per cwt. for sales, return is 36%. On the 15 year projection, the return with sales at $9.00 per cwt. is 28.8% and with sales at $10.00 per cwt. is 44%.

asw:jh:fn

[fol. 1150] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 102

Pennsalt Chemicals

Will S12 write memo after talking with J. Logan? D11.

Subject: Chlorates—East
Date: December 5, 1957
To: File
From: W. Cooper Willits
Copies To: D11-S12-L14-L9

At a meeting in the President's office today, attended by those receiving copies of this memo, Mr. Shanaman advised of his recent discussions with John Logan of Olin-Mathieson regarding the above-mentioned subject. He also reported that he had successfully extended our existing agreement with Olin-Mathieson for five years in connection with the *exclusive use* of Olin-Mathieson's chlorate equipment in the pulp and paper industry.

In response to a direct question, Mr. Logan told Mr. Shanaman that Olin-Mathieson would be reluctant to enter into an agreement to sell approximately 2,000 tons of chlorates annually in the eastern market unless we were in the position to guarantee the supply of this amount of product for two or three years. Mr. Shanaman satisfied Mr. Logan that such supply would be available in that, should we decide to build a chlorate plant in the East, it would undoubtedly take two or three years before production from that facility would be available. Under these circumstances Mr. Logan indicated that Olin-Mathieson would be actively interested in distributing in the East 2,000 tons of our Portland chlorate production and that they would want to bill and negotiate sales agreements for this material.

Mr. Drake asked all present two questions:

(1) Do we agree that it is unlikely in view of the capital requirements and relatively low return on investment that we alone would approve construction of an eastern chlorate plant?

(2) Would Olin-Mathieson be a logical partner?

The answer to both questions was yes.

Mr. Shanaman stated that thus permitting Olin-Mathieson to sell this amount of chlorates would give them an opportunity to do introductory sales work and would in no sense restrict the sales of the proposed joint plant to them. [fol. 1151] It was agreed that as soon as possible Mr. Shanaman would negotiate with Mr. Logan the sale of chlorates as mentioned above and that a subsequent discussion would be arranged by Mr. Drake with officers of Olin-Mathieson in connection with the proposed joint chlorate plant.

W.C.W.

wcw/r

[fol. 1152] In United States District Court

Plaintiff's Exhibit 103

December 17, 1957.

Mr. John C. Logan, Vice President
Olin-Mathieson Chemical Corporation
Mathieson Building
Baltimore 3, Maryland

Dear John:

Following up our conversations at Philadelphia, I made arrangements for sales and technical representatives to meet with your associates at New Orleans. It is my understanding that such preliminary information as seemed to be pertinent was exchanged, and the feeling generally prevailed that something might be accomplished with respect to the wide sales distribution among the southeastern pulp and paper mills of some 2,000 tons of our Portland, Oregon sodium chlorate during the year 1958.

I understand that confirmation of our portion of the New Orleans meeting will be forwarded to Derek Richardson. I am sure that if your sales or technical personnel require anything further from us, requests will be promptly made, and I assure you that our answers will be returned with equal promptness.

We realize that in conducting our investigation during the next year or so, a considerable amount of freight equali-

zation will be involved as well as a substantial amount of time, effort and expense related to sales and technical effort. However, the long range interest which appears to have community implications would seem to warrant such expense at this time, and I trust these convictions are shared by you also.

I shall look forward to a meeting with you in late January or early February while in the East, at which time we can review not only some of the details which may require attention, but also what plans, if any, can be developed relating to when we jointly or singly can be operating a facility from which sodium chlorate can be shipped economically to those eastern and southern pulp mills which are generating chlorine dioxide for bleaching purposes.

Very best wishes for the forthcoming Holiday Season, and with kindest regards.

Sincerely, Pennsalt of Washington Division, Fred Shanaman, President

FCS:meh
cc: D11

[fol. 1153] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 104

cc S12, M34, S21, M32

Plaintiff's L. M. Shanaman Exhibit 1

December 17, 1957.

Olin Mathieson Chemical Corporation
Baltimore 3, Md.
Attention: Mr. Derek Richardson

Dear Derek:

It was indeed a pleasure for Brian Shera and the writer to meet with you and the members of your southern sales organization in New Orleans last week.

The important points discussed at the meeting, which we now confirm, are as follows:

1. We can make available to your southern sales organization, in 1958, 2000 tons of bulk sodium chlorate, for shipment in tank cars provided by Pennsalt, or in buyer's tank cars.

2. The sales price to the southern mills will of course be determined by the prices established by local competition. Currently these prices are reported to be $8.15/cwt. in seller's cars, and $8.09/cwt. in buyer's cars, with which freight will be equalized. Such carload freight equalization will be with Columbus, Mississippi; Niagara Falls, N.Y.; and Henderson, Nevada.

3. Shipments are to be as evenly as possible distributed over the year of 1958, and Pennsalt of Washington cannot obligate itself to ship more than four cars in any one month; although in special cases it may be found possible to do so.

4. It was agreed that you will endeavor to place our sodium chlorate to pulp mill consumers in the South on a broad basis, instead of to one or two large accounts.

5. It was also agreed that Mathieson's and Pennsalt of Washington's traffic managers will consult with each other concerning the possibility of establishing distribution centers with intransit rates. Your facilities at Lake Charles, Louisiana and McIntosh, Alabama were mentioned in relation thereto.

[fol. 1154] 6. It was agreed that should any technical service regarding the use of sodium chlorate be required, Pennsalt of Washington will provide same upon request, and sales assistance will be available in any of the mills where we are acquainted with the personnel, such as East Texas Pulp.

7. As we pointed out, our Philadelphia sales office has one account in the South: the Buckeye Cellulose mill at Foley, Florida. It is contemplated, for the purpose of our discussion, that this will be the only account in the South using sodium chlorate for chlorine dioxide generation that our company will be serving direct.

It is believed the above points cover all pertinent matters discussed at the meeting except, of course, the technical problems discussed and information given by Brian Shera.

Your Mr. J. L. Pickens inquired regarding the possibility of selling sodium chlorate to the uranium industry in the Intermountain area and I confirm that our conversation was related to the sale of sodium chlorate in bulk loaded into tank cars and for sale to pulp and paper mills in the Southeast.

If there is additional information which was not brought out at the meeting and which you require, please let us know immediately so same can be forwarded to you at once.

The writer expects to be in Portland within the next couple of weeks and will call your brother, Stanton, at that time.

Kindest personal regards.

Very truly yours, Pennsalt of Washington Division,
L. M. Shanaman, Sales Manager, Heavy Chemicals Division.

LMS:JS

[fol. 1155] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 105

Olin Mathieson Chemical Corporation

Industrial Chemicals Division

Mathieson Building Baltimore 3, Maryland

December 19, 1957.

Mr. F. C. Shanaman, President
Pennsalt of Washington Division
Pennsalt Chemicals Corporation
2901 Taylor Way
Tacoma 2, Washington

Dear Fred:

We want to acknowledge your letter of December 17th and confirm our wire of this date.

Since the meeting in New Orleans, our people have cov-

ered all of the paper mills consuming chlorate. They have discovered competitive contracts concluded or in the final stages of negotiation in all cases. The largest chlorate buyer, namely, International Paper, is completely contracted and reluctant to guarantee any spot purchases during 1958.

Apparently we got started a little late in order to reach the 2000 ton level next year but I am confident that our people will keep on top of the situation and pick up business as the year progresses. At the moment, we can see approximately 500 tons of business in sight.

I am looking forward to a thorough review of the short and long range relationship on chlorate when you are East the latter part of next month.

With sincere best wishes for the holidays, I am,

Very truly yours, J. O. Logan, Vice President—General Manager, Industrial Chemicals Division

JOL:rsm

[fol. 1156] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 107

Pennsalt Chemicals

Subject: Chlorates Opportunities East of the Rocky Mountains
Date: January 7, 1958
To: Mr. H. C. Land
From: G. R. Lawson
Copies To: G11 B24 D72 L8

The subject report is being sent to the Market Development files inasmuch as there is no allocation of funds for the project in 1958.

From our preliminary and cursory review of the study, I can report that there are many doubts in our minds as to the advisability of the Industrial Division producing and selling these products. Items of concern are high cost of the original investment, comparatively low return on that investment, possible high cost of selling and servicing the

products, and the competitive and resale situations which exist.

Market Development can keep the project alive in a minor way during the year if you believe it advisable to do so. This would mean the allocation of a comparatively small amount of the time of a man or two to investigate some of the doubtful areas mentioned above.

Please advise your wishes in this matter.

GRLawson:eey

[fol. 1157] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 109

January 14, 1958.

Mr. F. C. Shanaman, President
Pennsalt of Washington Division
Pennsalt Chemicals Corporation
2901 Taylor Way
Tacoma 1, Washington

Dear Fred:

Since undertaking our work on chlorate sales, our people have raised the question of chlorate usage by the railroads as a right of way weed killing agent.

We do have some opportunity to move chlorate for weed killing applications but are not sure this was included in the intent of our arrangement with you. Please let us have your thinking on this subject, and if you are agreeable that we should undertake some activity in this direction, we will probably wish to talk further with Roy or Brian Shera.

Although this matter has already arisen, it is not urgent that it be answered until our meeting later this month. However, if you wish to drop us a reply Air Mail, we can guide our people in the meantime.

Sincerely yours, J. O. Logan, Vice President—General Manager, Industrial Chemicals Division.

JOL:rsm
Via Air Mail
bcc: Mr. W. A. King

[fol. 1158] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 110

Pennsalt Chemicals Corporation
2901 Taylor Way, Tacoma 2, Washington

Pennsalt of Washington Division.
January 16, 1958.

Penn Salt Chlorate

Mr. J. O. Logan, Vice President
Industrial Chemicals Division
Olin Mathieson Chemical Corporation
Mathieson Building
Baltimore 3, Maryland

Dear John:

I am hurriedly acknowledging your letter of January 14 concerning sodium chlorate. We have a contract with Chipman Chemical Company which covers *are* sales of sodium chlorate for railroad weed killing purposes. Under the circumstances same had been excluded from earlier discussions, and I will elaborate thereupon when I see you later this month.

Sincerely, Pennsalt of Washington Division, Fred Shanaman, President.

FCS:meh

[fol. 1159] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 111

Olin Mathieson Chemical Corporation

Date: 2/4/58.

To: File
From: J. O. Logan at Baltimore
Subject: Sodium Chlorate

Visited yesterday with Messrs. Drake, Shanaman and Land in Philadelphia. Drake outlined their long-range interest in chlorate in the South and suggested that there was sufficient that both Pennsalt and OM had to contribute to seriously consider joint activity.

It was further stated that Pensalt will within the next one to two weeks make an announcement of going into the perchlorate business at their Portland plant. Shanaman stated that the production of perchlorate added significantly to the attractiveness of a chlorate venture both because of the improved return per unit of product and the increased rate of chlorate production required to produce perchlorate.

It is felt that neither OM nor Pennsalt should move in the chlorate or perchlorate field without keeping the other party informed and I agreed to do so. Further stated that OM had studied electrolytic and chemical production of chlorate and the latter was reasonably attractive if surplus chlorine and alkali capacity existed. Also stated that because of our HEF operation there were some thoughts of entering the perchlorate picture.

It was concluded that we would continue the present sales activity on our part throughout the South and would make no positive commitments to future production at this time. Either party is to bring to the attention of the other any unusual aspects of this business which might make it desirable to proceed further with production plans.

J. O. Logan.

Yellow copy in "Pennsalt" file.

[fol. 1160] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 116

Olin Mathieson Chemical Corporation

Industrial Chemicals Division
Mathieson Building
Baltimore 3, Maryland

Bulletin No. 1583

Date: February 24, 1958.

Subject: Sodium Chlorate

Arrangements have been made for Olin Mathieson to serve as sales agents for Pennsalt Chemicals Corporation, and effective at once the Industrial Chemicals Division will solicit Sodium Chlorate business from pulp and paper mills in the Southeastern and Gulf states on the following terms and conditions:

1. Price

In Seller's tank cars (90,000 lbs. minimum) $8.15 per 100 pounds
In Buyer's tank cars (90,000 lbs. minimum) $8.09 per 100 pounds
Above prices F.O.B. Portland, Oregon, freight equalized with existing freight rate from Columbus, Mississippi.

2. Shipments

Shipments will be made in 8,000 and 10,000 gallon tank cars, equipped particularly for handling Chlorates. All freight charges will be prepaid and customers will be invoiced for the freight charges from Columbus, Mississippi to destinations.

3. Terms of Payment

Net cash in thirty (30) days from date of invoice.

4. Producers

Pennsalt of Washington Division, Pennsalt Chemicals Corp., Portland, Oregon

Hooker Electrochemical Company, Oldbury Division, Columbus, Mississippi
American Potash and Chemical Corporation, Henderson, Nevada

5. Literature

Attached for use by our Sales offices only is a Technical Bulletin containing complete information pertaining to properties and safe handling of Sodium Chlorate. As soon as possible a new OMCC technical bulletin will be prepared and sent to all Sales offices for general customer distribution.

K. C. Frazier, Manager, General Products Sales.

[fol. 1761] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 122

Subject: Ammonium Perchlorate and Development Chemicals
Date: April 22, 1958
To: File
From: Edwin E. Tuttle
Copies: D11-L9-L14-S12

These receiving a copy of this letter met this morning on this subject.

In regard to ammonium perchlorate and other Pennsalt high-energy endeavors, the following was agreed upon:

1. The primary objective for going into perchlorates at this time is to facilitate the justification for chlorate manufacture in the South.
Secondary objectives are obtaining profit from perchlorate per se, and prestige advantages of being in the "missile" field.
2. Ammonium perchlorate is now in the *commercial* stage (as opposed to being in the technical development stage) with the plant at Portland to be in commercial operation by November 1.

This program is under the direction of Errol Karr, who is responsible for contacts with the Government to obtain contracts; answering inquiries on our perchlorate program; disseminating information on prices, etc. Naturally, however, Technical Division and other personnel can be of help in this program by passing along to Mr. Karr any information or contacts which they have.

3. Other Pennsalt high energy programs are in the *development* stage, and are the responsibility of the Technical Division. Technical contacts here will be the prime responsibility of Dr. John Gall.

The marketing of Commercial Development products was also discussed.

1. The present policy on this was mentioned as requiring that all inquiries regarding products currently in the Commercial Development Department of the Technical Division be referred directly to the C. D. Department, and that contacts with customers principally to the C. D. people doing the development work.
2. It was suggested that this program might be modified to obtain aid in this development work from the regular sales force of the Company.
3. Dr. LaLande and Mr. Shanaman agreed to resolve the policy on this.

E. E. T.

EET:K

[fol. 1162] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 123

Plaintiff's L. M. Shanaman Exhibit 6

Olin Mathieson Chemical Corporation

Industrial Chemicals Division

Mathieson Building Baltimore 3, Maryland

May 22, 1958.

Mr. L. M. Shanaman, Sales Manager
Heavy Chemicals Division
Pennsalt Chemicals Corporation
2901 Taylor Way
Tacoma, 2, Washington

Dear Roy:

Question has arisen recently as to whether we would be in position to supply any Sodium Chlorate in 100 pound drums in the State of Oklahoma. The use is in the manufacture of Chlorine Dioxide Hydrate. Volume is not much over 100 tons per year, but it is possible that through some of our connections we might be able to participate.

If you have no objections to our soliciting this business, would you please supply us with the price information and how we would fare in handling this business.

We still are looking forward to seeing you the next time you are in the east, and hope that you will let us know when that will be.

Very truly yours, Bill, O. J. Theobald, Jr., Assistant Manager—Field Sales.

OJT:ddm

$9.25, frt equalizer.

[fol. 1163] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 124

Pennsalt Chemicals

Subject: Sodium Chlorate—Sales Forecast 1959-1964
Date: May 28, 1958
To: Mr. H. C. Land
From: G. R. Lawson
Copies To: B24 D72 G11
Copies made for D11-L9-S12 7/22

Based on the information contained in the CDD Market Study on Chlorates Opportunities East of the Rocky Mountains and on our general knowledge of the situation, we believe the following tentative sales forecast is reasonable:

	Sodium Chlorate—Tons					
	1959	1960	1961	1962	1963	1964
Chipman	0	5,000	5,000	5,000	5,000	5,000
Pulp and Paper	2,500	5,000	7,500	10,000	15,000	15,000
Totals	2,500	10,000	12,500	15,000	20,000	20,000

This forecast is based on these assumptions—

1. That, a plant located in the Southeast will be in production by January 1, 1960.
2. That, 2,500 tons will be available to us from Tacoma for sale in 1959 so that an active Sales and Technical Service program can begin early next year (this includes the 1,000 tons of business we have currently).
3. That, adequate Technical Service support will be provided; this will require at least two qualified field men and one laboratory chemist at an estimated annual expense of $35-45,000. This technical service is essential to the success of this venture.
4. That, the right to offer and install the Mathieson chlorine dioxide process will remain available to us.
5. That, our present field Sales force and Central Office staff, except for technical service mentioned above, are adequate to secure this business.
6. That, the Chipman tonnage is "solid."

[fol. 1164] If this tentative forecast is attractive to Management, we would like to secure more factual support for it by actually contacting the known customers and prospects for Sodium Chlorate in the Pulp and Paper Industry. We do not feel that it would be wise to do this until the Company is seriously interested in going ahead with the plant based on economics and factors other than the sales picture.

Hand delivered by L45.

GRLawson:eey

P.S.: We feel keenly that our chances to meet this sales goal diminish with each month's delay and consequently, we now look with more favor on the joint venture with Olin-Mathieson in order to minimize our capital investment and the other risks involved.

[fol. 1165] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 125

June 2, 1958.

Pennsalt Chemicals Corporation
2901 Taylor Way, Tacoma 2, Washington
Pennsalt of Washington Division

May 28, 1958.

Pending

CW Frost is handling with Geo A. and will keep us advised.

Mr. O. J. Theobald
Assistant Manager Field Sales
Industrial Chemicals Division
Olin Mathieson Chemical Corporation
Baltimore 3, Maryland

Dear Bill:

Referring to your letter of May 22, this is to advise we could supply you with approximately 100 tons of sodium chlorate packaged in 100 pound drums for shipment to your customer in the state of Oklahoma. It is our understanding

that the use of the material would be for the manufacture of chlorine dioxide hydrate, which is evidently for use in the flour business.

The present eastern price on carloads of sodium chlorate packaged in 100 pound drums is 9¼¢ per pound f.o.b. Columbus, Mississippi or Niagara Falls and of course we would equalize freight with these points of manufacture. We would also allow you the usual commission of 5% which we are giving you on the bulk shipments to pulp mills.

Kindest personal regards and looking forward to discussing this further when I see you in the east during the week of June 15.

Very truly yours, Pennsalt of Washington Division, L. M. Shanaman, Sales Manager, Heavy Chemicals Division

LMS:JS
6/2 cc C. W. Frost

[fol. 1166] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 131

Chlorate

August 5, 1958
Mr. Hugh Land
F. C. Shanaman
L45 has original letter

You received a copy of letter written to Dr. LaLande July 1st by Harry Haines of Walter Kidde Engineers, S.W. Are you having your sales force contact these mills to be brought up to date concerning their use of chlorate? Are you having market research check them or are you in touch with Mathieson regarding their contacts with the mills in efforts to sell our chlorate? Furthermore, is there anything you are expecting us to do from out here in connection with these southern mills in the way of sending them chlorate handling bulletins, etc.?

——, ——.

[fol. 1167] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 132

Walter Kidde Engineers-Southwest
Incorporated
1205 Holman Avenue
Houston 4, Texas

JAckson 9-2644 P. O. Box 8347

July 1, 1958.

Copies sent 7-3-58
to: K5, L14, S12
Dr. W. A. LaLande, Jr.
Vice President
Pennsalt Chemicals Corporation
3 Penn Center Plaza
Philadelphia 2, Pa.

Dear Dr. LaLande:

During our conversation on perchlorates several months ago, we did not emphasize sodium chlorate, principally because I felt that Pennsalt was aware of any information we might contribute on this subject.

It occurred to me, however, that you might be interested in the market potential for sodium chlorate in the Southwest. Recently we surveyed some firms in this area to determine who were currently using sodium chlorate. The following companies consume a minimum of 20 tons per day:

Arkansas

Crossett Paper Mills	Crossett
International Paper	Pine Bluff

Louisiana

Gulf States Paper	Demopolis
International Paper	Spring Hill
International Paper	Bastrop

Texas

Champion Paper & Fibre	Pasadena
Chipman Chemical	Houston
East Texas Pulp & Paper	Evadale

[fol. 1168] We did not inquire whether or not the Murphy Corporation at El Dorado, Arkansas is a large consumer for the recovery of bromine from oil field brines.

It would appear, if cheap power is available, that the Southwest could support a sodium chlorate plant, if one-half of the output could be earmarked for captive perchlorate production.

I also understand that the Texas Power & Light Company will sell electricity for 4.5 mills if they can work up a demand for a new 100,000 KW station, either as a separate or joint venture among several chemical firms. This company anticipates they can protect themselves from natural gas price increases with their captive lignite deposits amounting to one-third of a billion tons.

If your market research department has any further questions, we will be happy to give them assistance in any studies they may decide to undertake.

Yours very truly, Walter Kidde Engineers-Southwest, Inc., Harry Haines, Petrochemical Contract Engineer.

HH/vf

[fol. 1169] In United States District Court

Plaintiff's Exhibit 133

Chlorate

September 8, 1958
Mr. F. C. Shanaman
H. C. Land
yours of August 5th

Answer to your above letter has been delayed due to my being away on vacation.

I am under the impression that you are working with Olin Mathieson in connection with the sale of chlorate in the east

and have allocated some material for them. Consequently, we have not been attempting to sell chlorate other than through old customers and have not contacted other paper mills concerning their potential use of chlorate. This would seem to us to only interfere with your arrangement with Olin Mathieson. If this is not in accordance with your understanding, please let me know.

HCL:mk

[fol. 1170] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 135

Pennsalt Chemicals
Established 1850

Subject: Chlorate
Date: September 10, 1958
To: Mr. H. C. Land
From: F. C. Shanaman
Re: Your memo 9/8/58

You will recall that the writer indicated at two or more meetings we had at Philadelphia that we would reserve 2,000 tons of sodium chlorate per annum for use in the East by Olin-Mathieson and Pennsalt to determine what type of reception you could get from the consuming trade, and which would give an indication as to the desirability of manufacturing chlorate in the East independently or jointly with Mathieson or someone else.

The questions I thought you would want to consider are as follows:

1. During this period of investigation are you, through your sales personnel, getting information on your own with regard to consumption, usage, etc., or are you relying on us to supply the information if there is some future interest in building a plant for selling in the East?
2. Is Market Research working under Mr. LaLande doing anything, or are you and LaLande relying on Mathieson to the extent that you believe Mathieson

and Pennsalt may be together in the future on a joint venture?

3. Is there anything which you are expecting us to do with regard to investigating the eastern market in the case of pulp or otherwise?

The point is, Hughie, that I do not wish to be asleep out here if we are supposed to be taking an active part in the development of information which you may subsequently want to review when you may be faced with making a decision.

F. C. S.

FCS:meh

[fol. 1171] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 136

Extract from—Management Committee Meeting No. 88
Date—September 11, 1958
Convened: 9:30 A.M. to 4:00 P.M.
Members Present—Messrs. Clark, Collins, Drake, LaLande, Land, McWhirter and Willits
Members Absent—Messrs. Clem and Shanaman

IV. October 13 Planning Meetings

Week of Oct. 13 meetings, All Div. Mgrs.

The following items were discussed and were put on the agenda for the October 13 meetings:

2. Each Division will prepare a firm 1959 capital budget for the October 13 meetings. Mr. Drake mentioned the following three items upon which firm decisions should be made at that time:

a) Whether we will build a Sodium Chlorate plant, and if so, where.

[fol. 1172] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 137

Chlorate

September 17, 1958
Mr. F. C. Shanaman
H. C. Land
yours of September 10th.

I remember very well the meetings we had in Philadelphia and the fact that you were to reserve chlorate for use in the East by Olin Mathieson and Pennsalt. I don't remember being advised of any of the details after your discussions with John Logan and Don Drummond, other than that you were supplying Olin Mathieson with chlorate. It seems logical for you to continue this discussion with them, since you are already working closely on chlorine dioxide.

We have reviewed the market study prepared under the direction of Technical Division by Arthur D. Little, and, as you know, over the last five years have several times investigated the possibility of producing chlorate ourselves and jointly with Olin Mathieson.

In answer to the questions raised in your letter, I can give you the following:

1. We are not attempting to obtain additional information on chlorate through our own Sales Department and are limiting ourselves to Buckeye Cellulose in the pulp and paper field. This is in accord with the 1,000 ton limitation which you had previously given us and which was confirmed just recently by Roy Shanaman when during August we had an inquiry from Union Bag.
2. The market information we have was prepared by Arthur D. Little and we are doing nothing further with it. It would seem that further discussions with Olin Mathieson would be necessary, and we were of the opinion that you were carrying on these discussions.
3. The contact and development of the project with Olin Mathieson is the only phase that we have been

counting on Western Division to handle. We have determined the amount of material that we believe can be sold in the East, based upon our previous experience and the Arthur D. Little report.

[fol. 1173] We should discuss this more fully when you are in the East for the meetings next month.

HCL:mk

[fol. 1174] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 139

Pennsalt Chemicals

Meeting Monday, Oct. 27.

Subject: Chlorates
Date: September 26, 1958
To: Messrs. H. C. Land and F. C. Shanaman
From: William P. Drake
Copies To: C20: C28: C92: L9: M44: T30: W1

With the completion of the first ammonium perchlorate unit at Portland, the time has come to evaluate the following:

1. Where are we today
2. Where do we go from here
3. When

Will each of you be prepared to finalize a program and submit your joint recommendations at the Management meeting the week of October 13.

W. P. D.

WPD:m

Mary—

Get Lawson sales forecast letter on chlorate and my letter to & from S12

[fol. 1175] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 141

Extract from—Management Committee Meeting No. 89

Date—October 13, 1958
—October 14, 1958
—October 15, 1958
—October 16, 1958

Members Present

Messrs. Clem, Collins, Drake, LaLande, Land, McWhirter, Shanaman and Willits for all meetings; Mr. Clark was present October 13, 15 and 16.

Convened: 9:10 A.M. to 5:30 P.M. (and dinner)
9:05 A.M. to 5:00 P.M.
9:00 A.M. to 5:45 P.M. (and dinner)
9:10 A.M. to 3:00 P.M.

IV. Proposed 1959 Capital Program (2:30)

C. Major Project Discussions

Perchlorate S-12-L9

3. Ammonium Perchlorate ($400,000; 39% return: Approved. An economic "incremental" expansion to 2,000 tons. It includes grinding facilities since Mr. Shanaman stated the only reason for customers currently doing their own, was dissatisfaction with other manufacturers' performance (L9 question). Mr. Shanaman agreed to check on the depreciation period used to calculate the return.

Southern Chlorate Plant S12-L9-L14

4. Southern Chlorate Plant: Not discussed (or included in the program) at this time. Messrs. Shanaman, Land and LaLande are to review October 27.

[fol. 1176] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 142

Pennsalt Chemicals

Subject: Chlorates
Date: October 17, 1958
To: Messrs. H. C. Land and F. C. Shanaman
From: William P. Drake
Copies To: L9

In further reference to my note of September 26, as you know we have scheduled a meeting for October 27th at 10:00 a.m. to try to conclude what, if anything, we shall do on chlorates in the Southeast. I believe you, Fred, are planning to have Errol Karr here; you, Hugh, will have present anyone you may wish who can contribute to this discussion and I am asking Al LaLande to have anyone he believes can contribute attend with him. In the meantime, however, I would still like to have you two, Messrs. Shanaman and Land, get your heads together prior to our meeting in order that we may have some recommendation from you on which to act. So, I hope you will find time to get together to develop for me your answers and recommendations on the three questions raised in my memo of September 26th.

W. P. D.

WPD:m

[fol. 1177] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 143

Subject: Chlorates Opportunities East of the Rocky Mountains
Date: October 29, 1958
To: Mr. R. W. Sloan
From: R. J. Eastman
Copies: D-11, K-5, L-9, L-14, L-45, S-12, W-17

Those persons receiving copies of this memorandum met on Monday, October 27, 1958, to discuss the subject proposal. The following information was developed after extended discussion.

1. The next meeting will be held on *Tuesday, November 4, 1958,* at *9:30 A.M. in the Board Room.*

2. Available for consideration during the November 4 meeting will be up-dated cost estimates for a Calvert City, Ky. plant producing for sale 20,000 TPY of sodium chlorate and 10,000 TPY of ammonium perchlorate.

a) Proposed timing for the venture (attached) was discussed among those directly concerned.

b) The following prices will be used in the study:

sodium chlorate—8.09¢/lb. in buyers' tank cars f.o.b. Calvert City, freight equalized against Columbus, Miss.

ammonium perchlorate—33¢/lb. in carloads f.o.b. Calvert City, freight equalized (1/3 against Henderson, Nevada, and 1/3 against Columbus, Miss.)

c) Any subsequent studies should include an investigation of alternate plant sites within the TVA power area.

d) Further engineering evaluation is needed on new type cells—larger cells, bipolar cells, etc.

3. *Industrial Division will be responsible for the sale of sodium chlorate from the new plant.*

2) The sales forecasts contained in L-45's letter to L-14 (May 28, 1958) are tentative pending three man-months of detailed field investigations. This work will not be under-

taken unless P.C.C. finds the economies of the project acceptable.

b) *If the project is accepted, Olin-Mathieson may be used* as a sales agent covering the pulp and paper industry, par-
[fol. 1178] ticularly in the early years.

c) Sales expense allowance in previous studies may be too high. A value of about 4 percent of gross sales may be more realistic.

d) The *long-term price trend in sodium chlorate is probably up.*

e) Although the U. S. Coast Guard now prohibits the movement of sodium chlorate by water, approval is expected on a plan to move sodium chlorate slurries (water) via barge on the West Coast.

f) *Am. Pot. may shift away from its Solvay sales agent arrangement.*

4. The Portland, Ore., ammonium perchlorate plant should be expanded immediately in accordance with the timing listed in the attached sheet.

a) Total cost including working capital is estimated at $545,000 for the 2,000 TPY plant.

5. Ammonium perchlorate demands from rocket needs are growing rapidly. Based upon current trends, shortages will exist before 1960.

6. The following items were not covered during the October 27 meeting:

a) The position of potassium chlorate in the proposed venture.

b) The sales responsibility on ammonium perchlorate produced in the East.

c) The probable effect of 2,000 TPY ammonium perchlorate capacity at Portland on the proposed eastern plant.

RJE/AKK

[fol. 1179] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 146

Subject: Chlorates Opportunities East of the Rocky Mountains
Date: November 11, 1958
To: Mr. R. W. Sloan
From: R. J. Eastman
Copies: D-11, K-5, L-9, L-14, L-45, S-12, W-17

Those persons receiving copies of this memorandum held a second meeting to discuss the subject proposal on Monday, November 3, 1958. The following information was developed.

A. Combined Chlorate—Perchlorate Venture at Calvert City

1. Based upon the most recent cost estimates (W-19 to L-9 on October 31, 1958) the combined venture looks *economically* attractive. This is a 30,000 TPY sodium chlorate plant and a 10,000 TPY ammonium perchlorate plant.

2. The 10% annual depreciation rate on chlorate facilities may be high. Perhaps 7% annually is more appropriate.

3. The 12% S & A is believed realistic considering the strong technical service-sales service efforts anticipated (Adm. 5% and Sales 7%).

4. The attractive return on the combined venture is the result of very high return on perchlorate.

5. From a *market* and *profitability* viewpoint, the combined venture is characterized as a "gamble".

6. The cost to completely engineer the chlorate-perchlorate plant for Calvert City is very roughly estimated to be about equal to the one-year profit from the 2,000 TPY Portland ammonium perchlorate operation, i.e., approximately $200,000. Plant start up can be expected fourteen months after authorization—assuming no interruptions.

7. Timing and coordination on this venture are critical if we are to meet the objectives (see schedule attached to meeting notes of October 27, 1958).

8. A major inconsistency in timing needs to be resolved—see page of Summary Section of this report.

[fol. 1180] B. Sodium Chlorate—30,000 TPY Production: 20,000 TPY Merchants Sales.

1. Cost estimates are considered "snug" (± 25%).

2. The future market outlook is good. Historically, the U. S. producers have made little effort to expand existing uses or to develop new uses. Experienced personnel believe that such efforts should be very rewarding.

3. Informed personnel believe the P.C.C.'s technology for sodium chlorate is equal to any producers and probably better than most. Cell efficiencies are believed slightly better than most of the installed capacity. Process room operations (where profits are made or lost) are judged to be "top quality."

4. As the newest producer, Pennsalt should and could take leadership in (1) promoting sales aggressively, (2) extending existing uses, (3) developing new uses, (4) improving use technology. Technical service and application research personnel and facilities will be needed. Assembly of these assets should start immediately by the Industrial Division.

5. Sodium chlorate bulk prices should remain firm through the near-term future and then increase. However, if P.C.C. overly publicizes a large (20,000 TPY plant, the competition, particularly American Potash, may react and cut prices.

6. Sodium chlorate package prices will in the near future increase ¼ cent per pound ($5.00 per ton) to cover packaging costs. A change in bulk prices would probably not extend directly to packaged goods. A new differential would probably be established.

7. A second follow-up announcement on this proposed Calvert City plant should be issued promptly to preempt the market from other interested companies—Solvay, Columbia-Southern, Olin-Mathieson, etc. Wording of the publicity should be carefully chosen to avoid upsetting current pricing—particularly in perchlorates.

8. Industrial Division needs time to develop a sales position in the Southern pulp and paper industry. Efforts

would be made to sell not only sodium chlorate but also ammonia, chlorine, caustic soda, etc. Efforts should begin immediately with 1960 contracts the goal (contracts signed in the fall of 1959).

9. About 10% of P.C.C.'s current sales are into pulp and paper and with the proposed expansion of chlorates this [fol. 1181] would be about 15% in 1963. Firm estimates will be prepared for Mr. Drake by S-12 and L-14.

C. Ammonium Perchlorate—10,000 TPY at Calvert, 2,000 TPY at Portland.

1. Cost estimates are probably optimistic.

2. Problems may be encountered in extrapolating the engineering data from "semi-continuous" type operation of the 2,000 TPY plant up to the "continuous" type operations sought for the 10,000 TPY plant.

3. Military demands for ammonium perchlorate appeared, upon review, to be more than adequate to absorb all projected production during the next five years.

4. American Potash has a preferred sales position in ammonium perchlorate. Ex-military personnel working for American Potash have established strong political positions with the military services.

5. P.C.C. should not be discouraged by large capacity owned by the Navy because of basic Navy policy of mothballing its production facilities to encourage civilian producers of critical items.

In summary the following action and timing were agreed upon:

1. Western Division will immediately initiate preparation of an Appropriation Request for a 2,000 TPY capacity ammonium perchlorate plant at Portland, Oregon. This Request is to be submitted to the Board in December, 1958.

2. Mr. Drake will apprise the Board of the proposed plans for production and marketing of sodium chlorate and ammonium perchlorate in the East. Specifically, the proposed plant at Calvert City is to have a capacity of 30,000 TPY sodium chlorate and 10,000 TPY ammonium perchlo-

rate. Industrial Division will market 20,000 TPY sodium chlorate and the balance of 10,000 TPY will be used captively for perchlorates production.

3. Following (2) above Mr. Drake will make final decision to authorize action and expenditures for:

a) Central Engineering Department immediately to design and engineer *for* an Appropriation Request the 30,000 TPY sodium chlorate plant and subsequently the 10,000 TPY perchlorate plant. The latter engineering can begin after Western Division provides data from its 500 TPY stage operations of [fol. 1182] the Portland plant. The 500 TPY plant will not be as continuous as the 2,000 TPY operation. The latter operation will not be completely continuous. To meet construction and operation schedule of first quarter 1960 for the Eastern plant, the Appropriation Request must be completed by late May, 1959.

b) Industrial Division immediately to plan, organize, and undertake entry in the Southern and other Eastern pulp and paper markets. The objective will be the commercial sale of product beginning in January, 1960.

c) Western Division immediately to plan, organize, and undertake more extensive sales and promotional coverage of the ammonium perchlorate purchasers. Special attention will be given to Washington representation.

d) Public Relations immediately to prepare releases to publicize both the Portland and the Calvert City expansions—both as follow-ups of previous announcements.

* * * * * * *

Note: There is a serious inconsistency in timing of the foregoing and following (below) actions. All meeting participants agreed that the first quarter 1960 is to be the goal for initial operation of the sodium chlorate plant. Mr. Woodard estimated an elapsed time of fourteen months

continuous effort to engineer, design and construct such a plant. However, the June, 1959 review date, indicated in 4. below, will defer plant start up until at least the middle of 1960.

4. Mr. Drake in June, 1959 will review the total project. If the venture's prospects and profitability are still favorable, he will shortly thereafter submit the Appropriation Request to the Board.

RJE/AKK

[fol. 1183] Proposed Timing of Chlorates Venture
Calverty City, Kentucky

Year	Sodium Chlorate	Ammonium Perchlorate	Portland, Ore. Ammonium Perchlorate
1958	Start engineering design for complete project. Start sales program on sodium chlorate		Start expansion from present 76 TPY capacity.
1959	Construct entire basic plant plus first third of sodium chlorate cell capacity. Year end capacity: 10,000 TPY Sales: P & P 2500 T (Material supplied by P.W: Div.)	Midyear start construction of 10,000 TPY plant with 2nd 10,000 TPY sodium chlorate support capacity (cells, etc.)	Midyear capacity: 500 TPY Yearend capacity: 2000 TPY Sales: 1000 T (estimate)
1960	Capacity: 10,000 TPY Sales: P & P 5,000 Agr.* 5,000 10,000 T Start construction 3rd 10,000 TPY cell capacity	Complete construction of 10,000 TPY plant. Year end capacity: 10,000 TPY	Capacity 2000 TPY Sales 2000 T
1961	Complete construction 3rd 10,000 TPY cell capacity Year end capacity: 20,000 TPY Production: 10,000 T (min) Sales: P & P 7,500 Agr.* 5,000 12,500 Apparent shortage: 2,500 T	Capacity: 10,000 TPY Production: 10,000 T Sales: 10,000 T	Same as 1960
1962	Capacity: 20,000 TPY Sales: P & P 10,000 T Agr.* 5,000 15,000 T Apparent excess: 5,000 T	Same as 1961	Same as 1960
1963	Capacity: 20,000 TPY Sales: P & P 15,000 T Agr.* 5,000 20,000 T	Same as 1961	Same as 1960

* Includes both sales to Chipman and conversion to potassium chlorate.

[fol. 1184] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 148

Extract from—Management Committee Meeting No. 90
Date—November 13, 1958

Convened: 10:45 to 4:45 P.M.

Members Present—Messrs: Clark, Clem, Drake, Land, LaLande, McWhirter and Willits

IV. Safety

H. Capital Projects

Ammonium Perchlorate Plant Action Required S12

2. *Ammonium Perchlorate Plant:* Mr. Drake stated Mr. Shanaman plans to have this submitted in time for the December 3 Board meeting.

Southern Chlorate Plant and Renegotiation Action Required W1

3. *Southern Chlorate Plant:* Still under study. A progress report indicated action may depend on how much we are willing to gamble on future markets. If we go ahead, we must be ready to sell chlorates by 1960.

For the perchlorate part of the project, Mr. Drake asked Mr. Willits to determine whether the perchlorate business would be subject to renegotiation.

[fol. 1185] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 151

Defendants reserve objection re admissibility.

Extract from—Management Committee Meeting No. 93
Date—January 9, 1959
Convened—9:30 to 5:00 P.M.
Members Present—Messrs. Clark, Clem, Collins, Drake, Land, LaLande, McWhirter, Shanaman and Willits

I. 1959 Budget

1. The final summary of the proposed 1959 Budget was presented. The total called for sales of about $83,000,000, earnings of $3.70 per share, and an approximate return on investment of 6.8%.

I. 1959 Budget

5. The capital budget, as reviewed and approved at the Barclay meetings, was reapproved for 1959. The only major addition was the West Coast Chlorate plant.

[fol. 1186] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 154

Plaintiff's LaLande Exhibit #11

2/20 Check with L9 on Olin-Mathieson data.

Subject: Appropriations Committee Meeting No. 15
Date: January 29, 1959
To: Messrs. Drake—LaLande—McWhirter and Willits
From: E. E. Tuttle
Copies: L14-S12

This meeting was held following the Management Committee meeting on Friday, January 23. All those receiving a copy of this letter were present.

The purpose of the meeting was to further discuss the Joint Chlorate and Perchlorate Expansion Project.

A. Joint Chlorate & Perchlorate Expansion (PSW-086-P)

1. The justification of this project versus that of a Perchlorate expansion alone was discussed on the basis of the data recorded in my letter of January 20.
2. As prepared, this project provides for a Chlorate capacity of 15,300 tons, which it is estimated will become inadequate for market requirements by 1963 (exclusive of Eastern requirements). After that time, the market is estimated to increase to 18,000 tons.

   In addition, Mr. Drake advised that conversations had again been made with Olin-Mathieson on the subject of a joint venture at Brunswick. A preliminary step to such a plant in the Southeast might be a market build-up supplied by production from the West Coast plant.

   In view of the above two considerations, Mr. Drake asked whether it would be advisable to increase the Chlorate capacity immediately to 18,000-19,000 tons.
3. Mr. Shanaman advised that the rectifiers, as included in the present request, were already sufficient to provide for a later expansion of another 4,000

tons (i.e., up to a capacity of 19,300 tons). The additional equipment necessary to raise the capacity to [fol. 1187] 19,300 tons would cost another $1.5 million. With the rectification as now included in PSW-086-P being sufficient for later expansion needs, Mr. Shanaman suggested that the full increase to 19,300 tons not be made immediately.

B. Action Taken:

The following action was decided upon:

1. PSW-086-P be taken to the Board on February 4 as written (i.e., $1,437,000. for fixed capital to expand Chlorate facilities by 3,000 tons to 15,300 tons, and to expand Ammonium Perchlorate capacity to 2,000 tons, but including standby rectifier capacity sufficient for 19,300 tons of Chlorates.
2. Mr. Shanaman would investigate further the capital costs and economics of an enlarged Chlorate plant of 18,000-19,000 ton capacity.
3. Dr. LaLande agreed to prepare data for discussion with Olin-Mathieson re the economics of a joint venture in the East for a Chlorate-Perchlorate project. If Olin is not desirous of proceeding further with this joint venture, Dr LaLande agreed to resubmit to the committee data on Pennsalt doing the project alone.

E. E. T.

EET:EF

Checked with L9 2/3—this will take at least 2 wks.

Checking with L9 (2/20) for

[fol. 1188] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 160

Olin Mathieson Chemical Corporation
Mathieson Building
Baltimore 3, Maryland

John O. Logan
Vice President

February 27, 1959.

Mr. W. P. Drake, President
Pennsalt Chemicals Corporation.
3 Penn Center Plaza
Philadelphia 2, Pennsylvania

Dear Bill:

We have brought up-to-date our information on power available at Brunswick, Georgia as you and I discussed in New York last month.

At the time of our previous study of this matter there was a limitation on the amount available but this has been eliminated by additional capacity both in power production and distribution facilities.

We may, therefore, consider that ample power will be available at Brunswick. It will cost approximately 7.5 mils per kwh delivered at a 11,000 kilowatt demand, which I believe is roughly equivalent to a 40 ton chlorate plant. This power can be delivered at any one of three voltages, namely, 4160, 12,600 or 13,800.

The more we look at Brunswick and the above power costs the more we recognize that it will be difficult to develop sound economics for chlorate production at that point. We are reviewing power and salt cost factors at other locations so as to be better prepared to reach a decision when such is necessary.

Kind personal regards.

Very truly yours, John.

cc sent to L14 & S12.
3/4/59 to nis.
JOL:rsm

[fol. 1189] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 165

Pennsalt Chemicals

Note on duplicate (HCL) says file until D-11 calls a meeting.

Subject: Sodium Chlorate and Ammonium Perchlorate Plants
Date: April 10, 1959
To: Mr. William P. Drake
From: W. A. LaLande, Jr.
Copies To: L14-M44-S12-W1-T30-7

In accordance with your request (Appropriation Request Committee Meeting No. 15 held January 23, 1959) I have summarized in the attached table investment and return data on chlorate and chlorate-perchlorate plants at Calvert City (1-8, incl.) and at Brunswick, Georgia (9-11, incl.).

Also attached are copies of letters from Central Engineering (W17-L9, 10/31/58;* T29-W17, 1/20/59; W17-L9, 4/6/59) giving the details of the estimating, all of which is based on the earlier calculations of Joe Heitman with necessary modifications.

It is our understanding that the Brunswick site has recently been eliminated from further consideration. Do you wish us to make any additional estimates?

Mathieson believes Brunswick costs too high evaluating Alabama site and will advise.

WAL:K
Att.

* You received a copy of this letter at the time it was issued; we are not, therefore, attaching a second copy.

[fol. 1190]

Return on Total Investment

	Plant Capacity, t/yr.		Financing	(12-yr. avg.)	Depreciation Period	Total P.C.C. Investment
*	1. Chlorate	30,000	100% P.C.C.	13.3%	12 years	$ 8,229,000.
	2. Chlorate	30,000	100% P.C.C.	28.2	12 years on chlorate	$11,768,000.
	Perchlorate	10,000			5 years on perchlorate	
	3. Chlorate	30,000	50% F.C. @ 6%	17.1	12 years	$ 4,559,000.
	4. Chlorate	30,000	50% F.C. @ 6%	40.0	12 years on chlorate	$ 6,905,000.
	Perchlorate	10,000			5 years on perchlorate	
	5. Chlorate	25,000	100% P.C.C.	15.9	27 years on bldgs. and heavy electrical; 17 years—equipment	$ 6,961,000.
	6. Chlorate	25,000	100% P.C.C.	24.1	As in (5)	$ 9,131,000.
	Perchlorate	5,000			5 years on perchlorate	
	7. Chlorate	25,000	50% F.C. @ 6%	27.1	As in (5)	$ 3,869,000.
	8. Chlorate	25,000	50% F.C. @ 6%	42.7	As in (5)	$ 5,241,000.
	Perchlorate	5,000			5 years on perchlorate	
**	9. Chlorate	25,000	100% P.C.C.	15.0	As in (5)	$10,930,000.
	Perchlorate	5,000				
***	10. Chlorate	25,000	50% F.C. @ 6%	22.6	As in (5)	$ 6,141,000.
	Perchlorate	5,000				
	11. Chlorate	25,000	100% F.C. @ 6%	83.2	13 years	$ 1,352,000.
	Perchlorate	5,000	(e.g., leaseback)			(working capital only)

* (1) to (8) at Calvert City
** (9) to (11) at Brunswick, Georgia
*** This estimate is not included in the attached reports.

April 10, 1959

WAL:K

[fol. 1191] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 166

Sodium Chlorate and Ammonium Perchlorate Plants
April 20, 1959
Dr. W. A. LaLande, Jr.
William P. Drake
L14: M44: S12: W1: T30

You are correct that the Brunswick site has recently been eliminated from further consideration. For the present I see no reason for you to do any additional work on this pending receipt of word from Mathieson relative to a site they are evaluating in Alabama which they believe will be superior to Brunswick.

Thanks for your report on this.

WPD:m

[fol. 1192] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 168

Extract from the Minutes of Division Management Meeting
Held on June 8, 1959

Present: J. O. Logan, O. J. Theobald, Jr., W. A. King, C. C. Hightower, K. C. Frazier, C. L. Williamson

Chlorate Facility

Subject facility will be discussed this week. It may be either on a joint venture or independent basis. The feeling exists that there is a market to justify such a facility. Mr. Logan will discuss our interest in the joint venture (Penn Salt) this week.

[fol. 1193] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 172

Chlorates

November 17, 1959 (Dict. 11.16.59)
Messrs. H. C. Land and W. A. LaLande, Jr.
William P. Drake

Tomorrow, or as soon as possible thereafter, I would like to talk with you again about chlorates in the East. While with Fred Shanaman this past week he told me that Olin Mathieson have asked for 3,000 tons of sodium chlorate for shipment to the Southeast in 1960. Apparently they are becoming more successful than anticipated in securing this business for the pulp and paper industry.

Will you please dust off your files and plan to discuss this with me on Thursday, November 19 at 2:30 P. M.

WPD:m

[fol. 1194] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 173

Pennsalt Chemicals

Subject: Chlorates—Eastern Plant
Date: December 14, 1959
To: Mr. W. P. Drake
From: N. M. Walker
Copies To. 1X

This letter is in answer to your request for a resume of the present situation regarding chlorates in the East.

In order to get background on this subject I have reviewed all the information in your files, as well as those of Messrs. Land, Lawson and Eastman, and in addition have talked to all of them. As I am sure you know, a mass of information has been collected on this subject and several meetings held —the last one on November 11, 1958. Since then the only

additional thing of importance which has happened is that Dr. LaLande sent you on April 10, 1959, a summary of investment and return data on chlorate and perchlorate plants at Calvert City and Brunswick, Georgia. These estimates are still valid.

The files indicate that as of November 1958 everything had been done preliminary to making a decision on this project, with the possible exception of reaching some agreement with Olin Mathieson on a joint venture. Now, however, I believe the sales forecast is out of date and to some extent will have to be redone. This is because at the time, timing was considered critical. Even when the sales forecast was made in May 1958, the Industrial Division was afraid American Potash and Hooker would be so far ahead that it would be difficult for Pennsalt to get a sales position. Now, over a year and a half later these two companies must be strongly entrenched and it will be necessary to determine just what the market potential is today and the current position of the two competitors.

In addition to bringing the market study and sales forecast for sodium chlorate up to date, the ammonium chlorate situation must also be reviewed. This is important because it is only the combined chlorate-perchlorate plants which make the project attractive from a return standpoint, particularly if Pennsalt were to undertake the project without a partner.

The latest thinking on plant size is 30,000 TPY for chlorate and 10,000 TPY for perchlorate. Without a partner and using 100% Pennsalt capital the combined plant shows a return of 28%. Sodium chlorate alone shows a return of 13%. With a partner and 50% borrowed capital at 6% the return for a combined plant is 40% and for chlorate alone 17%.

[fol. 1195] One thing that appears to have prevented this project from moving along is the fact that no one appears to have been given overall responsibility for it. I believe that so much time has passed since this project was last considered that another meeting will be necessary to move it off "dead center."

N. M. W.

NMW/eh

[fol. 1196] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 174

Pennsalt Chemicals

Subject: Chlorate
Date: December 30, 1959
To: Mr. W. P. Drake
From: H. C. Land

On November 17th you wrote about a meeting on Chlorates in the East. I don't believe that this meeting was ever held. I must admit that I was of the opinion that this project was not active, since it was not mentioned during our recent Pocono Manor meetings and is not among the approved projects for the period 1960-1964. However, if it is to be reactivated we should all be advised of current thinking.

During Mr. Shanaman's recent trip east he told me that he can sell all of the chlorate on the west coast and has no interest in sending the product east unless we have active plans to install production facilities. In fact, he will have to purchase European chlorate for us to supply P&G at Foley, Florida, and this will not be profitable business on that basis. I am about ready to tell P&G that we do not wish to supply them after the 1960 contract is fulfilled. We are also not able to handle inquir-es for chlorate properly since our Sales people do not know whether they should solicit business for future divisional sale, turn the inquiry over to Olin Mathieson, or refer the inquiry to the west coast. While we are not actively attempting to sell chlorate in the east, our contacts with paper mills turn up inquiries from time to time such as the present one we have with Waldorf Paper Products in Wisconsin.

I have read the recent file and make the following observations:

1. Chlorate in the east is a good project only if perchlorate is included and then only if production is at least 25,000 tons per year chlorate and 5,000 tons per year perchlorate.
2. Chlorate alone would have to include a partner who is willing to supply 50% of the capital at 6%, and the

plant should have a minimum production capacity of 25,000 tons per year.

3. Plant must be at Calvert or as a part of an existing chemical plant located on the TVA power system.

[fol. 1197] 4. We must have the right to use Olin Mathieson's chlorine dioxide process.

5. Unless Olin Mathieson is going to sell the output of the proposed plant, there seems to be no reason to be giving them 3,000 tons per year of chlorate from Portland.

When this project was undertaken back in 1957, we talked about either building a plant or putting the project to bed so that we would not periodically review the much traveled ground without coming to a conclusion. I believe the objective stated is still a good one.

H. C. Land.

HCL:mk

[fol. 1198] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 175

Plaintiff's Clem Exhibit 1 for Identification

9-28-61 LD.

Willits

[Letterhead of]

Olin Mathieson Chemical Corporation

February 11, 1960.

Mr. William P. Drake, President
Pennsalt Chemicals Corporation
3 Penn Center
Philadelphia 2, Pennsylvania

Dear Mr. Drake:

This letter is intended to outline a basis on which Pennsalt Chemicals Corporation ("Pennsalt") and Olin Mathieson Chemical Corporation ("Olin") will enter into a joint venture for the manufacturing and marketing of Sodium Chlorate, Potassium Chlorate, and Perchlorates to be manufactured in facilities of a new company designated as Penn-Olin Chemical Company, hereinafter referred to as ("Penn-Olin") to be owned equally by Pennsalt and Olin.

Preliminary estimates indicate that the proposed 25,000 ton/year Sodium Chlorate plant and related facilities will cost approximately $6,500,000.

Final engineering studies are now being made to determine the cost of the Sodium Chlorate project. In this connection, there is to be a joint technical investigation to evaluate available equipment and processes for this facility and based on the findings of this investigation, the equipment and process to be employed will be mutually agreed upon. Each of the parties agrees to retain in confidence secret know-how which it receives from the other in the course of this negotiation and will enter into appropriate "confidentiality" agreements with respect thereto. Outside engineering expenses incurred by mutual agreement will be shared equally by Pennsalt and Olin. While these studies are in

progress, financial arrangements will be made and contracts drawn to carry out these projects in accordance with the general principles set forth herein.

1. Pennsalt and Olin will each own 50% of the capital stock of Penn-Olin and 50% of the subordinated notes, if any, of Penn-Olin. It is agreed that the financing of Penn-Olin shall, to the extent possible, be accomplished by a maximum amount of debt financing, to be provided by a bank or other lending institution, and a minimum amount of capital stock and subordinated notes. It is presently expected that [fol. 1199] the amount to be invested by Pennsalt and Olin in respect of the capital stock and subordinated notes of Penn-Olin will not exceed the sum of $1,000,000 for each party.

2. Penn-Olin will endeavor to negotiate a bank loan on terms satisfactory to Pennsalt and Olin estimated between four and one-half and five million dollars to be used toward the financing of the construction of the new Sodium Chlorate plant and related facilities.

3. Penn-Olin will arrange for the construction and operation of the Sodium Chlorate plant, such operations to be governed by the following understanding:

(a) Pennsalt will transfer to Penn-Olin land for the plant location adjacent to Pennsalt's Calvert City, Kentucky plant; the value of said land to be based upon a current appraisal and to be credited against the subscription payable by Pennsalt for the capital stock of Penn-Olin.

(b) All services supplied by Pennsalt or Olin to Penn-Olin will be provided at Pennsalt's or Olin's actual cost of such services, excluding, however, corporate general administrative expense.

4. Penn-Olin will arrange for the sale of its output of Sodium Chlorate by Olin and Olin shall act as sales agent of Sodium Chlorate for Penn-Olin, and Olin shall use its best efforts to sell the Sodium Chlorate at the best terms available, such marketing to be governed by the following understanding:

(a) All Sodium Chlorate sold to Olin, Pennsalt, their affiliates or subsidiaries for consumption purposes shall be

sold at competitive market price and no allowance shall be made to Olin for selling expense.

(b) The Sodium Chlorate sold to others than Olin, Pennsalt, their affiliates or subsidiaries shall be the responsibility of Olin.

(c) Olin as sales agent for Penn-Olin shall be reimbursed for all direct and indirect expenses incurred in making such sales including a pro rata share of Divisional administrative expenses, but excluding corporate general administrative expense.

5. With respect to any technical information, know-how, process techniques and apparatus, and operating data relating to the operations or contemplated operations of Penn-Olin which either party now possess or which it may develop prior to December 31, 1964 (hereinafter called Technical Information), each of the parties hereto agrees:

[fol. 1200] (a) to disclose its Technical Information promptly to Penn-Olin,

(b) to grant to Penn-Olin a nonexclusive, royalty free right to use said Technical Information in its own operations, and

(c) to grant to Penn-Olin a nonexclusive, royalty free license under its U. S. Patents required in the use of the said Technical Information by Penn-Olin.

6. It is recognized that a definitive contract in greater detail will be necessary to cover the provisions of this letter respecting the selection of a Sodium Chlorate process, and the formation of Penn-Olin and other matters relating thereto. Both parties agree to negotiate in good faith for the purpose of reaching a mutual agreement on the provisions of a definitive contract that will be consistent with the understandings above set forth. If the definitive contract is not agreed upon and executed by both parties within a reasonable time after date of acceptance of this letter, both parties will be relieved of all further obligations under this letter, except with respect to the sharing of outside engineering expenses, theretofore, authorized by the parties.

If the foregoing meets with your approval, will you

please so indicate by signing and returning the attached copy of this letter.

Very truly yours, Olin Mathieson Chemical Corporation, By s/ S deJ. Osborne.

Approved as of the date of this letter:

Pennsalt Chemicals Corporation, By s/ Wm. P. Drake.

[fol. 1201] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 176

Certificate of Incorporation of Penn-Olin Chemical Company

We, the undersigned, for the purpose of associating to establish a corporation for the transaction of the business and the promotion and conduct of the objects and purposes hereinafter stated, under the provisions and subject to the requirements of the laws of the State of Delaware (particularly Chapter 1 of Title 8 of the Delaware Code of 1953, and the acts amendatory thereof and supplemental thereto, and known as the "General Corporation Law of the State of Delaware"), do make and file this certificate of incorporation in writing and do hereby certify as follows, to wit:

First: The name of the corporation (hereinafter called the Corporation) is

Penn-Olin Chemical Company

Second: The respective names of the County and of the City within the County in which the principal office of the Corporation is to be located in the State of Delaware are the County of New Castle and the City of Wilmington. The name of the resident agent of the Corporation is The Corporation Trust Company. The street and number of said [fol. 1202] principal office and the address by street and number of said resident agent is No. 100 West Tenth Street, in the City of Wilmington, State of Delaware.

Third: The nature of the business of the Corporation and the objects or purposes to be transacted, promoted or carried on by it are as follows:

(1) To produce, manufacture, process, refine, treat, extract, store, purchase or otherwise acquire, and to sell, use, deal in, transport, distribute, market, handle and otherwise turn to account or dispose of, either in their natural form or any altered, converted or manufactured form, chemicals and chemical compositions of any state, form, nature, mixture or description, including, without limiting the generality of the foregoing, Sodium Chlorate, Potassium Chlorates, and perchlorates and any and all materials, mixtures, products, byproducts, articles and substances directly or indirectly related thereto in any way or of a like or similar nature, including all those which may be ingredients thereof or derivatives therefrom, or which may be useful in the manufacture or production thereof, or which may be advantageously manufactured or produced in connection therewith, or in the manufacture, production or use of which the same may be useful, and all other kinds of products, articles, goods, wares and merchandise, of every name and nature, whether consisting, in whole or in part, of materials and substances similar to or different from the foregoing.

(2) To erect, construct, build, purchase, lease or otherwise acquire, equip, hold, own, improve, develop, manage, maintain, control, operate, lease, mortgage, create liens upon, sell, convey or otherwise dispose of, or turn to account, any and all buildings, factories, plants, refineries, laboratories, oil wells, gas wells, mines, installations, equipment, machinery, storage tanks, tank cars, tank wagons, locomotives, railroad cars, tractors, trucks, cars, airplanes, boats, barges and other vehicles and vessels, pipe lines, pumps, pumping stations, filling stations, railways, roadways, canals, water courses, wharves, piers, docks, basins, and other structures, machines and apparatus of every kind and description, and any and all rights and privileges therein, useful in the conduct of the business of the Corporation.

[fol. 1203] (3) To conduct and carry on any experimental and research work in chemical, engineering and other scientific fields, and to render to any person, firm, association or corporation engaged in any lawful adventure, enterprise or business, services of an engineering, scientific, business or technical nature, or concerned with the management, production or sale of any patent, process, or business program.

(4) To manufacture, process, purchase, sell and generally to trade and deal in and with machinery, apparatus, goods, wares, products and merchandise of every kind, nature and description, and to engage and participate in any mercantile, industrial or trading business of any kind or character whatsoever.

(5) To acquire by lease, purchase, contract, concession or otherwise, and to own, explore, exploit, develop, improve, operate, lease, enjoy, control, manage or otherwise turn to account, mortgage, grant, sell, exchange, convey or otherwise dispose of, any and all real estate, lands, options, concessions, grants, land patents, mineral rights, and any other franchises, claims, rights, privileges, easements, tenements, estates, hereditaments, interests and properties, real or personal, tangible or intangible, of every description and nature whatsoever, useful in the conduct of the business of the Corporation.

(6) To purchase or otherwise acquire, and to hold, mortgage, pledge, sell, exchange or otherwise dispose of, securities (which term, for the purpose of this Article Third, includes, without limitation of the generality thereof, any shares of stock, bonds, debentures, notes, mortgages or other obligations, and any certificates, receipts or other instruments representing rights to receive, purchase or subscribe for the same, or representing any other rights or interests therein or in any property or assets) created or issued by any persons, firms, associations, corporation, or governments or subdivisions, instrumentalities or agencies thereof; to make payment therefor in any lawful manner; and to exercise, as owner or holder of any securities, any and all rights, powers and privileges in respect thereof.

(7) To enter into, make, perform and carry out

contracts and agreements of every kind and description which may be necessary, appropriate, convenient or advisable in carrying out the business of the Corporation, with any corporation, association, partnership, [fol. 1204] firm, trustee, syndicate, individual, government, state, municipality or other governmental division or subdivision.

(8) To acquire by purchase, exchange or otherwise, all, or any part of, or any interest in, the properties, assets, business and good will of any one or more persons, firms, associations or corporations heretofore or hereafter engaged in any business for which a corporation may now or hereafter be organized under the laws of the State of Delaware; to pay for the same in cash, property or its own or other securities; to hold, operate, reorganize, liquidate, sell, lease or in any manner dispose of the whole or any part thereof; and in connection therewith, to assume or guarantee performance of any liabilities, obligations or contracts of such persons, firms, associations or corporations, and to conduct the whole or any part of any business thus acquired.

(9) To lend its uninvested funds from time to time to such extent, to such persons, firms, associations, corporations, governments or subdivisions, instrumentalities or agencies thereof, and on such terms and on such security, if any, as the Board of Directors of the Corporation may determine.

(10) To endorse or guarantee the payment of principal, interest or dividends upon, and to guarantee the performance of sinking fund or other obligations of, any securities, and to guarantee the performance of any contracts or other undertakings in which the Corporation may otherwise be or become interested, in so far as may be permitted by law.

(11) To develop, apply for, obtain, register, purchase, lease, take licenses in respect of or otherwise acquire, and to hold, own, use, operate, enjoy, turn to account, grant licenses in respect of, manufacture under, introduce, sell, assign, mortgage, pledge or otherwise dispose of any and all inventions, devices, formulae, processes, improvements and modifications

thereof, letters patent and all rights connected therewith or appertaining thereunto, copyrights, trademarks, trade names, trade symbols and other indications of origin and ownership, franchises, licenses, grants and concessions granted by or recognized under the laws of the United States of America or of any State or subdivision thereof or of any other country or subdivision thereof.

[fol. 1205] (12) To borrow money for any of the purposes of the Corporation, from time to time, and without limit as to amount; from time to time to issue and sell its own securities in such amounts, on such terms and conditions, for such purposes and for such prices, now or hereafter permitted by the laws of the State of Delaware and by this certificate of incorporation, as the Board of Directors of the Corporation may determine; and to secure such securities by mortgage upon, or the pledge of, or the conveyance or assignment in trust of, the whole or any part of the properties, assets, business and good will of the Corporation, then owned or thereafter acquired.

(13) To purchase, hold, cancel, reissue, sell, exchange, transfer or otherwise deal in its own securities from time to time to such an extent and in such manner and upon such terms as the Board of Directors or the Corporation shall determine; provided that the Corporation shall not use its funds or property for the purchase of shares of its own capital stock when such use would cause any impairment of its capital, except to the extent permitted by law; and provided further that shares of its own capital stock belonging to the Corporation shall not be voted upon directly or indirectly.

(14) To organize or cause to be organized under the laws of the State of Delaware, or of any other State of the United States of America, or of the District of Columbia, or of any territory, dependency, colony or possession of the United States of America, or of any foreign country, a corporation or corporations for the purpose of transacting, promoting or carrying on any of or all the objects or purposes for which the Corporation is organized, and to dissolve, wind up, liqui-

date, merge or consolidate any such corporation or corporations or to cause the same to be dissolved, wound up, liquidated, merged or consolidated.

(15) To conduct its business in any and all of its branches and maintain offices both within and without the State of Delaware, in any and all States of the United States of America, in the District of Columbia, in any or all territories, dependencies, colonies or possessions of the United States of America, and in foreign countries.

(16) To do all and everything necessary, suitable, convenient or proper for, or in connection with, or incident to, the accomplishment of any of the purposes [fol. 1206] or the attainment of any one or more of the objects herein enumerated or incident to the powers herein specified, or which shall at any time appear conducive to or expedient for the accomplishment of any of the purposes or the attainment of any of the objects hereinbefore enumerated not inconsistent with the laws of the State of Delaware; and to execute from time to time such general or special powers of attorney, and to such person or persons as the Board of Directors may approve, granting to such person or persons such powers as the Board of Directors may deem proper, and to revoke such powers of attorney as and when the Board of Directors may desire.

The foregoing provisions of this Article Third shall be construed both as purposes and powers and each as an independent purpose and power. The foregoing enumeration of specific purposes and powers shall not be held to limit or restrict in any manner the purposes and powers of the Corporation, and the purposes and powers herein specified shall, except when otherwise provided in this Article Third, be in no wise limited or restricted by reference to, or inference from, the terms of any provision of this or any other Article of this certificate of incorporation; provided that nothing herein contained shall be construed as authorizing the Corporation to issue bills, notes or other evidences of debt for circulation as money, or to carry on the business of receiving deposits of money or the business of buying gold or silver bullion or foreign coins or as

authorizing the Corporation to engage in the business of banking or insurance or to carry on the business of constructing, maintaining or operating public utilities in the State of Delaware; and provided, further that the Corporation shall not carry on any business or exercise any power in any state, territory or country which under the laws [fol. 1207] thereof the Corporation may not lawfully carry on or exercise.

Fourth: The total number of shares of stock which the Corporation shall have authority to issue is Two thousand (2,000), and the par value of each of such shares shall be One Dollar ($1.00). All such shares shall be of one class and shall be designated Common Stock.

The minimum amount of capital with which the Corporation shall commence business is Two thousand Dollars ($2,000).

The holders of Common Stock shall, as such, have the right, pro rata, according to their respective holdings of Common Stock, and on such terms and conditions as the Board of Directors may determine, to purchase or subscribe for (a) any of the authorized but unissued shares of Common Stock which the Corporation may hereafter issue for cash or (b) any obligation which the Corporation may hereafter issue or sell for cash which shall be convertible into, or exchangeable for, shares of Common Stock or to which shall be attached or appurtenant any warrant, option or other instrument that shall confer upon the holder or holders of such obligation the right to subscribe for or purchase or receive from the Corporation any shares of Common Stock; provided, however, that any such right to purchase or subscribe for any such shares of Common Stock or any such obligation shall be nontransferable; and provided further, that if and to the extent said right is not [fol. 1208] exercised within a reasonable time, as determined and prescribed by the Board of Directors, or subject to the exercise of said right, such shares of Common Stock or such obligations may thereafter be issued and disposed of pursuant to resolutions of the Board of Directors, adopted either before or after any offering to holders of Common Stock as contemplated herein, to such persons, firms, corporations or other entities or groups and upon such terms and conditions as may be deemed advisable by

the Board of Directors in the exercise of its discretion. Except as herein above expressly provided or unless otherwise determined by the Board of Directors, no holder of stock of the Corporation of any class shall, as such holder, have any right to purchase or subscribe for (a) any shares of stock of any class which the Corporation may issue or sell, whether or not such stock shall be out of unissued shares authorized by this certificate of incorporation or by any amendment thereto or out of any shares of stock of the Corporation acquired by it after the issue thereof, or (b) any obligation which the Corporation may issue or sell that shall be convertible into, or exchangeable for, any shares of stock of the Corporation of any class or classes, or to which shall be attached or appurtenant any warrant, option or other instrument that shall confer upon the holder or holders of such obligation the right to subscribe for or purchase or receive from the Corporation any shares of its stock of any class or classes.

[fol. 1209] Subject to the By-laws of the Corporation, as from time to time amended, with respect to the closing of the transfer books and the fixing of a record date for the determination of stockholders entitled to vote, each holder of record of Common Stock shall be entitled to one vote for each share of Common Stock held by him at each meeting of the stockholders of the Corporation.

Fifth: The names and places of residence of each of the incorporators are as follows:

Name	
Reginald C. Burroughs	315 Paddington Road Baltimore 12, Maryland
Kenneth Bank	3302 Hillsdale Road Baltimore 7, Maryland
William A. Sutton	1210 Winston Avenue Baltimore 12, Maryland

Sixth: The Corporation is to have perpetual existence.

Seventh: The private property of the stockholders of the Corporation shall not be subject to the payment of corporate debts to any extent whatever.

Eighth: For the management of the business and for the conduct of the affairs of the Corporation, and in further definition, limitation and regulation of the powers of the Corporation and of its directors and stockholders, it is further provided:

[fol. 1210] 1. The number of directors of the Corporation shall be fixed by its by-laws and may be altered from time to time by amending the by-laws as therein provided, but in no case shall the number be less than three. A director need not be a stockholder. The election of directors of the Corporation need not be by ballot unless the by-laws so require.

2. In furtherance and not in limitation of the powers conferred by the laws of the State of Delaware, the Board of Directors is expressly authorized and empowered:

(a) To make, alter, amend or repeal the by-laws of the Corporation, in any manner not inconsistent with the laws of the State of Delaware or the Certificate of Incorporation of the Corporation;

(b) Subject to the applicable provisions of the by-laws then in effect, to determine from time to time, whether and to what extent and at what times and places and under what conditions and regulations the accounts and books and documents of the Corporation, or any of them, shall be open to the inspection of stockholders;

[fol. 1211] (c) Subject to the provisions of this Certificate of Incorporation, to authorize and issue, from time to time, obligations of the Corporation, secured or unsecured, to include therein provisions as to redeemability, convertibility into shares of stock of the Corporation or otherwise, and to authorize the mortgaging or pledging, as security therefor, of any property, real or personal, then owned or thereafter acquired by the Corporation;

(d) To determine whether any, and if any, what part, of the annual net profits of the Corporation or of its net assets in excess of its capital shall be declared in dividends and paid to the stockholders, and to direct and determine the use and disposition of any such annual net profits or net assets in excess of capital;

(e) To fix from time to time the amount of the profits of the Corporation to be reserved as working capital or for any other lawful purpose;

(f) To establish bonus, profit-sharing, retirement or other types of incentive or compensation plans for the

officers and employees (including officers and employees who are also directors) of the Corporation and to determine the persons to participate in any such plans and the amount of their respective participations;

[fol. 1212] (g) To issue and sell or grant options for the purchase of shares of stock of the Corporation or shares of stocks of any other corporation to officers and employees (including officers and employees who are also directors) of the Corporation and its subsidiaries for such consideration and on such terms and conditions as the Board of Directors may from time to time determine;

(h) To designate one or more committees, each committee to consist of two (2) or more of the directors of the Corporation, which to the extent provided in said resolution or resolutions or in the by-laws, shall have and may exercise the powers of the Board of Directors in the management of the business and affairs of the Corporation and may have power to authorize the seal of the Corporation to be affixed to all papers which may require it, such committee or committees to have such name or names as may be stated in the by-laws or as may be determined from time to time by resolution adopted by the Board of Directors;

(i) To cause the Corporation to enter into an agreement or agreements with one or more stockholders restricting or affecting the transferability of any shares of stock represented by certificates held by such stockholders and, provided the restriction is stated upon the certificate or certificates representing such shares, to restrict the transferability of any shares [fol. 1213] of stock so represented in accordance with such agreement or agreements; and

(j) In addition to the powers and authorities hereinbefore and by the laws of the State of Delaware expressly conferred upon the Board of Directors, to exercise all such powers and do all such acts and things as may be exercised or done by the Corporation, subject, nevertheless, to the provisions of the laws of the State of Delaware, of this Certificate of Incorporation and of the by-laws of the Corporation.

3. Any director or any officer elected or appointed by the stockholders of the Corporation or by its Board of Directors may be removed at any time in such manner as shall be provided in the by-laws of the Corporation.

4. In the absence of fraud, no contract or other transaction between the Corporation and any other corporation, and no act of the Corporation, shall in any way be invalidated or otherwise affected by the fact that any one or more of the directors of the Corporation are pecuniarily or otherwise interested in, or are directors or officers of, such other corporation or have a pecuniary or other interest in such act. Any director of the Corporation individually, or any firm or association of which any director may be a member, may be a party to, or may be pecuniarily or other- [fol. 1214] wise interested in, any contract or transaction of the Corporation, provided that the fact that he individually or such firm or association is such a party or so interested shall be disclosed or shall have been known to the Board of Directors of the Corporation or a majority of the members thereof as shall be present at any meeting of the Board of Directors at which action upon any such contract or transaction shall be taken; and any director of the Corporation who is also a director or officer of such other corporation or who is so interested, may be counted in determining the existence of a quorum at any meeting of the Board of Directors or of any committee thereof which shall authorize any such contract or transaction, and may vote thereat to authorize any such contract or transaction, with like force and effect as if he were not such director or officer of such other corporation or not so interested. Any director of the Corporation may vote upon any contract or other transaction between the Corporation and any subsidiary or affiliated corporation without regard to the fact that he is also a director of such subsidiary or affiliated corporation.

Any contract, transaction or act of the Corporation, or of the Board of Directors, or of any committee of the Board of Directors, which shall be ratified by the holders of a [fol. 1215] majority of the outstanding capital stock of the Corporation either in writing or by vote at any annual meeting, or at any special meeting called for such purpose, shall, in so far as permitted by law or by this Certificate

of Incorporation, be as valid and as binding as though ratified by every such stockholder; provided, however, that any failure of the stockholders to approve or ratify any such contract, transaction or act, when and if submitted, shall not be deemed in any way to invalidate the same or deprive the Corporation, its directors, officers or employees, of its or their right to proceed with such contract, transaction or act.

5. Subject to any limitation in the by-laws then in effect, the members of the Board of Directors shall be entitled to reasonable fees, salaries or other compensation for their services and to reimbursement for their expenses as such members. Nothing contained herein shall preclude any director from serving the Corporation, or any subsidiary or affiliated corporation, in any other capacity and receiving proper compensation therefor.

6. Anything herein contained to the contrary notwithstanding, (a) the number of directors who shall be present at any meeting of the directors in order to constitute a quorum for the transaction of any business shall be at [fol. 1216] least a majority of the whole Board of Directors, and (b) the number of votes of directors that shall be necessary for the transaction of any business at any meeting of directors shall be the affirmative votes of at least a majority of the whole Board of Directors. As used in this paragraph, the term "whole Board of Directors" shall mean the number of directors which the Corporation is at the time authorized to have, as specified in the By-laws of the Corporation.

7. The number of votes or consents of the holders of shares of stock of the Corporation of any class having voting power that shall be necessary for the approval or ratification of any proposal or action at any meeting of the stockholders, including amendments to this certificate of incorporation, or the giving of any consent, shall be the affirmative votes or consents of the holders of at least a majority of the shares of stock of the Corporation of such class at the time issued and outstanding.

Ninth: The stockholders and the Board of Directors shall have the power, if the by-laws so provide, to hold their respective meetings outside of the State of Delaware, and except as otherwise required by law, the corporate records,

books, documents and papers of the Corporation may be kept outside of the State of Delaware.

[fol. 1217] Tenth: The Corporation reserves the right from time to time to amend, alter, change, add to or repeal any provisions contained in this Certificate of Incorporation in any manner now or hereafter prescribed by law and in this Certificate of Incorporation, and all rights and powers at any time conferred upon stockholders, directors and officers of the Corporation by this Certificate of Incorporation or any amendment thereof are subject to the provisions of this Article Tenth.

In Witness Whereof, we, the undersigned, being all of the incorporators hereinabove named, do hereby further certify that the facts hereinabove stated are truly set forth, and accordingly have hereunto set our respective hands and seals this 24th day of February, 1960.

Reginald C. Burroughs, (Seal). Kenneth Bank, (Seal). William A. Sutton, (Seal).

[fol. 1218]. STATE OF MARYLAND,
City of Baltimore, ss:

Be it Remembered that on the 24th day of February, 1960, personally appeared before me, Helen M. Alban a Notary Public in and for the City and State aforesaid, Reginald C. Burroughs, Kenneth Bank and William A. Sutton, all the incorporators who signed the foregoing Certificate of Incorporation, known to me personally to be such, and I having made known to them and to each of them the contents of said Certificate of Incorporation, they did severally acknowledge the same to be the act and deed of the signers, respectively, and that the facts therein stated are truly set forth.

Given under my hand and seal of office the day and year aforesaid.

Helen M. Alban, Notary Public.

My Commission Expires May 1, 1961

Helen M. Alban, Notary Public, Baltimore, Md.

[fol. 1219]

State of Delaware

Office of Secretary of State.

I, George J. Schulz, Secretary of State of the State of Delaware, do hereby certify that the above and foregoing is a true and correct copy of

Certificate of Incorporation of the "PENN-OLIN CHEMICAL COMPANY", as received and filed in this office the twenty-fifth day of February, A.D. 1960, at 10 o'clock A.M.

In Testimony Whereof, I have hereunto set my hand and official seal at Dover this twenty-fifth day of February in the year of our Lord one thousand nine hundred and sixty.

Office of Secretary of State.

I, George J. Schulz, Secretary of State of the State of Delaware, do hereby certify that the above and foregoing is a true and correct copy of

Certificate of Incorporation of the "PENN-OLIN CHEMICAL COMPANY", as received and filed in this office the twenty-fifth day of February, A.D. 1960, at 10 o'clock A.M.

In Testimony Whereof, I have hereunto set my hand and official seal at Dover this twenty-fifth day of February in the year of our Lord one thousand nine hundred and sixty.

George J. Schulz
Secretary of State

FORM 121

REC'D FOR RECORD Feb.25,1960. JOSEPH A. BRADSHAW, RECORDER

253

[fol. 1220] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 181

This agreement is dated and is effective as of January 2, 1961.

The parties are Pennsalt Chemicals Corporation (Pennsalt), a Pennsylvania corporation, Olin Mathieson Chemical Corporation (Olin), a Virginia corporation, and Penn-Olin Chemical Company (Penn-Olin), a Delaware corporation.

The background of this Agreement is:

A. By letter agreement dated February 11, 1960, Pennsalt and Olin agreed to (i) enter into a joint venture for the manufacturing and marketing of sodium chlorate through Penn-Olin and (ii) set forth the terms of this joint venture in greater detail in a definitive contract. This is the definitive contract and supersedes the February 11, 1960 letter agreement.

B. Penn-Olin was incorporated with an authorized capital of 2,000 shares, each with a par value of $1, of which one share has been issued to Pennsalt for $1,000 and one share to Olin for a like amount.

C. Penn-Olin is about to acquire land from Pennsalt adjacent to Pennsalt's existing plant at Calvert City, Kentucky, and to construct on it a sodium chlorate plant (Plant) with an annual capacity of 26,500 tons.

The terms of this Agreement are:

1. *Financing.* The initial cash requirements of Penn-Olin are presently estimated at approximately $7,500,000 and will be provided by

[fol. 1221] (a) Pennsalt's and Olin's each buying 499 shares of Penn-Olin $1 par value capital stock (Stock) at a price of $1,000 per share payable in cash or property as later stated;

(b) Pennsalt's and Olin's each buying $1,000,000 principal amount of Subordinated Notes due 1970 (Subordinated Notes) of Penn-Olin, such Subordinated Notes to bear interest at the same annual rate as the

loan referred to in subparagraph 1(c) and to be in substantially the form of the attached Exhibit A; and

(c) Penn-Olin's borrowing up to $4,500,000 from one or more commercial banks or other lending institutions under one or more loan agreements containing terms satisfactory to Pennsalt and Olin. Purchases under subparagraphs 1(a) and 1(b) will be made in accordance with the schedule which has been approved by Pennsalt and Olin.

2. *Conveyance of Plant Site.*

(a) Promptly after the effective date of this Agreement Pennsalt will convey to Penn-Olin a parcel of land (Land), as shown on the attached Exhibit B, located at Calvert City, Kentucky, adjacent to Pennsalt's existing plant, with an area of 11.833 acres for a price of $4,000 per acre, or a total amount of $47,332. The Land and any Additional Acreage sold to Penn-Olin pursuant to subparagraphs 2(b) and 2(c) will be conveyed free and clear of all liens, charges and en- [fol. 1222] cumbrances, but subject to existing easements. Pennsalt warrants that none of such easements will impair Penn-Olin's use of the Land in operating its business or the value of the Land for the purpose of the business. By separate agreement (herein called the easement agreement) between Pennsalt and Penn-Olin, to be dated as of the date of the deed to Penn-Olin for the Land, Pennsalt will grant to Penn-Olin easements over other property of Pennsalt as therein described. Such separate agreement will also reserve to Pennsalt certain easements with respect to the Land. In payment for the Land Penn-Olin will issue to Pennsalt 47 shares of Stock (which shares are included in the 499 shares referred to in paragraph 1) at the rate of $1,000 per share and $332 in cash. Penn-Olin will complete construction of the Plant on the Land.

(b) For future expansion of Penn-Olin's operations, Pennsalt will keep available for Penn-Olin through December 31, 1970, a total of approximately 16.9 additional acres (Additional Acreage) as shown on the attached Exhibit B. At any time or from time to time through such date, if Penn-Olin notifies Pennsalt in writing that Penn-Olin desires to purchase all or any part of the Additional Acreage, Pennsalt will convey the same to Penn-Olin upon payment

in cash for it at Pennsalt's principal office not later than 30 days after delivery of Penn-Olin's notice. The purchase price for Additional Acreage will be an amount equal to its appraised value at the time of purchase by Penn-Olin, as determined by an appraiser mutually agreed upon by Pennsalt and Olin.

[fol. 1223] (c) After December 31, 1970, Pensalt will not sell or otherwise dispose of Additional Acreage not purchased by Penn-Olin except as follows: If Pennsalt desires to use for its own purposes or to dispose of Additional Acreage it will deliver to Penn-Olin a written notice (i) advising Penn-Olin of the amount of Additional Acreage to be used or disposed of, (ii) naming the price (which will be the appraised value of such amount within 30 days of the date of the notice and determined by an appraiser mutually agreed upon by Pennsalt and Olin) at which it is willing to sell such amount and (iii) giving Penn-Olin an option to buy all such amount at such price. If within 30 days after delivery of such notice Penn-Olin notifies Pennsalt in writing of its election to purchase all such amount, Pennsalt will convey the same to Penn-Olin upon payment in cash for it at Penn-Olin's principal office not later than 20 days after delivery of Penn-Olin's election. If Penn-Olin does not so elect to purchase such amount of Additional Acreage, Pennsalt may thereafter use all or part of the Additional Acreage referred to in such notice or dispose of all or part of such Additional Acreage for such price and on such terms as it deems desirable, free (whether used or disposed of) of any option or other obligation to Penn-Olin hereunder or otherwise.

[fol. 1224] 3. *Purchase of Stock and Subordinated Notes.*

(a) Pennsalt and Olin will each purchase Stock up to the amounts stated in subparagraph 1(a) as requested from time to time by Penn-Olin. Stock will be purchased in such amounts that Pennsalt and Olin will always each own an equal number of shares. At the time the Land is conveyed, Olin will buy sufficient Stock to give it the same number of shares as Pennsalt. No borrowing will be made under the loan agreement referred to above until all Stock to be purchased under subparagraph 1(a) has been purchased.

(b) Pennsalt and Olin will each purchase Subordinated Notes up to the amount stated in subparagraph 1 (b) as requested from time to time by Penn-Olin. Subordinated Notes will be purchased in such amounts that Pennsalt and Olin will each always own an equal principal amount thereof. It is understood that no call shall be made by Penn-Olin for Subordinated Notes until all of the aforesaid shares of Stock shall have been purchased by Pennsalt and Olin.

(c) Pennsalt and Olin each agree that all Stock and Subordinated Notes acquired as provided in subparagraphs 3(a) and 3(b) will be acquired for investment and not with a view to the distribution or resale thereof.

4. *Voting of Stock.* At all times Pennsalt and Olin will each be entitled at each stockholders' meeting of Penn-Olin for the election of directors to nominate and elect the number of directors (to the nearest whole number) which bears the same ratio to the total number of directors to be elected as the number of shares of Stock held by it and its wholly- [fol. 1225] owned subsidiaries bears to the total number of shares of Stock then outstanding. Either Pennsalt or Olin will be entitled to nominate and elect a majority of the number of directors of Penn-Olin at any time when either and its wholly-owned subsidiaries own a majority of the outstanding Stock. The person to fill any vacancy in the board of directors of Penn-Olin will be designated by the holder of Stock who was represented on the board by the predecessor of such person. The number of directors will not be increased except by election at a meeting of stockholders, provided that the foregoing shall not apply to the increase in number of directors effected at the meeting of directors held October 20, 1960. Pennsalt and Olin will each vote and will cause its wholly-owned subsidiaries to vote all shares of Stock owned by them to carry out the intent of this paragraph.

5. *Restrictions on Transfer of Stock.*

(a) Neither Pennsalt nor Olin nor any of their respective wholly-owned subsidiaries will pledge or otherwise dispose of any Stock except as later stated. No disposal of Stock will be valid and no transfer of Stock will be made

on the transfer records of Penn-Olin unless Penn-Olin receives evidence satisfactory to it that the conditions stated below have been met.

(b) Pennsalt and Olin will each have the right to transfer Stock to one or more of its wholly-owned subsidiaries or to a corporation succeeding it by merger, consolidation, or the purchase of substantially all of its assets, but only if the transferee agrees in writing with the other parties hereto to be bound by the provisions of this Agreement. [fol. 1226] Pennsalt or Olin, as the case may be, will acquire all Stock held by a wholly-owned subsidiary before disposing of any of its shares of such subsidiary.

(c) In the case of a transfer other than one permitted by subparagraph 5(b), the transferor will deliver to Pennsalt or Olin, as the case may be (the optionee), a written notice (i) stating the number of shares of Stock that the transferor desires to transfer, (ii) advising the optionee of the names of any prospective transferees to whom the transferor desires to dispose of the Stock, (iii) naming the price at which it is willing to sell the Stock, and (iv) giving the optionee an option to buy all such Stock at such price. The notice will provide that if the optionee elects to buy all the Stock specified in the notice from the transferor the optionee will so notify the transferor in writing within 30 days after delivery of the notice from the transferor. The transferor will assign and transfer such Stock to the optionee upon payment for it at Penn-Olin's principal office not later than 20 days after delivery of the notice from the optionee to the transferor.

If the optionee does not give such notice within such 30-day period, the transferor will be entitled for a period of three months beginning on the 31st day after delivery of its notice to the optionee to dispose of not less than all of the Stock specified in such notice to the prospective transferees named and at the price stated in the notice. Such transferees will be entitled to have such Stock transferred upon the transfer records of Penn-Olin and such Stock will thereafter be free of the restrictions above stated. If the transferor does not dispose of such Stock within the three-months' period, such Stock will thereafter be subject to all the restrictions above stated.

[fol. 1227] During the effective period of this Agreement

each Stock certificate will bear the following words when held by anyone subject to this Agreement:

> "Transfer of the shares of stock represented by this certificate is subject to an agreement dated as of 1961, by Pennsalt Chemicals Corporation, Olin Mathieson Chemical Corporation and Penn-Olin Chemical Company, a copy of which agreement is on file at the principal office of Penn-Olin Chemical Company."

6. *Parent Company Options to Prevent Penn-Olin's Default.* If at any time Penn-Olin shall not have sufficient cash to repay any installment of principal on its borrowings or other obligations, Pennsalt and Olin each shall have the option to loan to Penn-Olin a proportion of the cash required by Penn-Olin to repay any such installment corresponding to the percentage of outstanding Stock then owned by Pennsalt and Olin, as the case may be, and its wholly-owned subsidiaries. Such loans will be evidenced by the Subordinated Notes (Parent Company Subordinated Notes), of Penn-Olin in substantially the form of the attached Exhibit C, and will bear interest at the prime rate on the date of issue.

If either Pennsalt or Olin fails to exercise such option (the Defaulting Parent), then the other (the Lending Parent) shall have the option to make an additional loan to Penn-Olin covering the balance of the amount required by Penn-Olin to repay any such installment, such additional loan to be evidenced by Parent Company Subordinated Notes.

[fol. 1228] At any time within six months following the making of such additional loan, the Defaulting Parent shall have the option, upon written notice to the Lending Parent, to purchase from the Lending Parent the Parent Company Subordinated Notes issued to the Lending Parent in connection with the making of such additional loan. If such option is not exercised within such six months' period, the Defaulting Parent will, at any time thereafter, at the option and upon written notice by the Lending Parent, purchase from the Lending Parent the Parent Company Subordinated Notes issued to the Lending Parent in connection with the making of such additional loan. In either case,

such purchase shall take place at the Lending Parent's principal office on a full business day designated by the purchaser, not less than five and not more than ten full business days following the day on which notice relating to such purchase shall have been given. The purchase price of such Parent Company Subordinated Notes shall be par plus the amount of any unpaid interest accrued to date of purchase. Such purchase price shall be paid by the Defaulting Parent, against delivery by the Lending Parent of such Parent Company Subordinated Notes, duly endorsed to the order of the Defaulting Parent, but without recourse of any kind, and such payment shall be made, at the option of the Defaulting Parent, either (i) in cash or by certified or official bank check, or (ii) by the transfer to the Lending Parent of a number of full shares of Stock at the time owned by the Defaulting Parent or by its wholly-owned subsidiaries equal (as nearly as may be) in aggregate book value as of the date of purchase to such purchase price, any balance of such purchase price in excess of said aggregate book value to be paid in cash.

[fol. 1229] For the purposes of this paragraph 6, the book value of shares of Stock as of any date shall be the book value thereof determined from the balance sheet of Penn-Olin as of the end of the preceding calendar quarter, as certified by Penn-Olin's Treasurer. If either the Defaulting Parent or the Lending Parent requests such balance sheet to be certified by independent public accountants, Penn-Olin will arrange for such certification by the independent public accountants then employed by it, but all expenses incurred in connection therewith shall be paid by the parent company requesting such certification. If the balance sheet, as so certified, results in any change of book value in shares of Stock for the purposes of this paragraph 6, appropriate adjustment, by payment or refund, will be made between the Defaulting Parent and the Lending Parent to reflect such change.

7. *Technical Information.* Pennsalt and Olin agree that, with respect to any technical information, know-how, process techniques and apparatus, and operating data relating to the manufacturing and marketing of sodium chlorate which either Pennsalt or Olin possesses or which it may

develop prior to December 31, 1964 (Technical Information), Pennsalt and Olin will each:

(i) disclose its Technical Information promptly to Penn-Olin;

(ii) grant to Penn-Olin a nonexclusive, royalty free right to use said Technical Information in its own operations; and

(iii) grant to Penn-Olin a nonexclusive, royalty free license under its U. S. and Canadian Patents required in the use of said Technical Information by Penn-Olin.

[fol. 1230] Pennsalt and Olin shall establish as promptly as practicable a technical committee consisting of an equal number of representatives designated by each such party (at least 3 representatives to be designated by each). Pennsalt and Olin shall disclose said Technical Information and only said Technical Information to such committee which shall receive the same solely on behalf of Penn-Olin, and transmit the same to Penn-Olin solely for its own use.

8. *Officers.* It is agreed that (i) the office of President shall be alternated annually between designees of Pennsalt and designees of Olin, and (ii) when the office of President is held by a designee of one of such parties, the other of such parties may designate the person to hold the office of Vice President.

9. *Notices.* Any notice, request or other communication provided for in this Agreement will be in writing mailed or delivered to the party involved at the address stated below:

Pennsalt Chemicals Corporation
Three Penn Center
Philadelphia 2, Pennsylvania

Olin Mathieson Chemical Corporation
Chemicals Division
10 Light Street
Baltimore 3, Maryland
Attention of: Vice President and General Manager

Penn-Olin Chemical Company
100 West 10th Street
Wilmington 99, Delaware

or at such other address as such party may later designate by notice in accordance with this Agreement. Any such notice, request or other communication which is mailed by registered mail or certified mail will be deemed to have been given at the time of mailing.

[fol. 1231] 10. *Term.* This Agreement will continue until (a) the total number of shares of Stock owned by Pennsalt and Olin and the wholly-owned subsidiaries of either is less than a majority of the outstanding Stock or (b) all borrowings under the loan agreement mentioned in subparagraph 1(c) have been repaid and either Pennsalt and its wholly-owned subsidiaries or Olin and its wholly-owned subsidiaries no longer hold any Stock.

11. *Conditions.* The obligations of the parties, except for those stated in paragraph 5, are subject to execution of (a) a loan agreement pursuant to subparagraph 1(c), (b) an agreement between Penn-Olin and Pennsalt satisfactory to Olin with respect to the purchase from Pennsalt of Penn-Olin's requirements of certain services and utilities and the performance of certain administrative and other services on behalf of Penn-Olin, and (c) an agreement between Penn-Olin and Olin satisfactory to Pennsalt with respect to Olin's performance of sales services for Penn-Olin.

12. *Examination of Books.* Penn-Olin shall have the right, at all reasonable times, to examine the books of Olin to the extent reasonably necessary to determine the charges made under the above-mentioned sales agreement, and Penn-Olin shall have the right, at all reasonable times, to examine the books of Pennsalt to the extent reasonably necessary to determine the charges made under the above-mentioned service agreement. Any such examination shall be made through independent public accountants satisfactory to the parties.

[fol. 1232] 13. *Miscellaneous.*

(a) This Agreement will inure to to the benefit of and be binding upon (i) a wholly-owned subsidiary of Pennsalt or Olin to which any Stock is transferred and (ii) any corporation into or with which any party is merged or consolidated or to which it sells substantially all of its assets as permitted by the provisions of paragraph 5.

(b) The parties intend to be legally bound by this Agreement which will be governed by Pennsylvania law.

(c) All prior agreements between Pennsalt and Olin on any matter covered by this Agreement or the above-mentioned sales or service agreements or easement agreement, including those contained in the above-mentioned letter agreement dated February 11, 1960, are superseded hereby or by such sales or service agreements, or easement agreement, as the case may be.

(d) The operations of Penn-Olin shall be limited exclusively to the manufacturing and marketing of sodium chlorate and all other activities necessarily incident thereto.

In Witness Whereof, the parties hereto have caused these presents to be duly executed the day and year first above written.

Pennsalt Chemicals Corporation, By J. McWhirter, Vice President, Olin Mathieson Chemical Corporation, By J. O. Logan, Vice President, Penn-Olin Chemical Company, By J. McWhirter, President.

(Corporate Seal)

Attest: Nicholas M. Walker, Assistant Secretary.

(Corporate Seal)

Attest: C. L. Williamson, Asst. Secretary.

(Corporate Seal)

Attest: ——, ——, Secretary.

[fol. 1233] Exhibit A

Penn-Olin Chemical Company

Subordinated Note, due January 1, 1970

$1,000,000

, 19—.

Penn-Olin Chemical Company, a Delaware corporation (herein called the Company), for value received, hereby promises to pay to the order of —————— the principal amount of One Million Dollars ($1,000,000) on or before January 1, 1970, and to pay interest on the unpaid prin-

cipal amount hereof at the rate of 5% per annum from the date hereof, payable semiannually on January 1 and July 1 in each year. Payment of the principal of and interest on this note will be made at the principal office of the Company in Wilmington, Delaware, in such coin or currency of the United States of America as at the time of payment is legal tender for the payment of public and private debts.

This note is one of a duly authorized issue of notes of the Company (herein called the Notes), of like tenor and effect except as to date, payee and principal amount, limited to a maximum aggregate principal amount of $2,000,000 all issued or to be issued in accordance with the provisions of an Agreement dated as of January 2, 1961, among the Company, Pennsalt Chemicals Corporation (herein called Pennsalt) and Olin Mathieson Chemical Corporation (herein called Olin).

So long as ——— (herein called the Bank) shall have any commitment under the Loan Agreement dated ——— 1961, between the Company and the Bank (herein called the Loan Agreement) and until all of the notes (herein called [fol. 1234] the Bank Notes) issued pursuant to the Loan Agreement have been paid in full, the Company will not be obligated to make, and the holders of the Notes will not take or receive from the Company, in any manner, payment of the whole or any part of the Notes or security therefor; provided, however, that so long as no event of default defined in the Loan Agreement shall have occurred and be continuing, interest on the Notes may be paid and received in accordance with its terms. Upon any distribution of assets of the Company to creditors upon any dissolution or winding-up or total or partial liquidation or reorganization of the Company, whether voluntary or involuntary, or in any bankruptcy, insolvency, receivership or other proceedings, all principal, interest and premium, if any, due upon the Bank Notes shall first be paid in full before the holders of the Notes shall be entitled to receive or retain any payment or distribution in respect thereof. Upon any such dissolution or winding-up or liquidation or reorganization, the holder of this note irrevocably authorizes the holder of the Bank Notes to file on behalf of the holder of this note any and all claims, proofs of debt, petitions, consents and other documents, and any payment or distribu-

tion of assets of the Company of any kind or character, whether in cash, property or securities, to which the holder of this note would be entitled, shall be paid, by the Company or by any receiver, trustee in bankruptcy, liquidating trustee, agent or other person making such payment or distribution, direct to the holder of the Bank Notes to the extent necessary to pay all the Bank Notes in full before any payment or distribution is made to the holder of this note. Notwithstanding the foregoing provisions, if, upon any such dissolution or winding-up or liquidation or reorganization, any payment or distribution of assets of the [fol. 1235] Company of any kind or character, whether in cash, property or securities, shall be received by the holder of this note before all the Bank Notes are paid in full, such payment or distribution will be held in trust for the benefit of, and shall be paid over to, the holder of the Bank Notes for application to the payment of the Bank Notes until all the Bank Notes shall have been paid in full. No extension or renewal or alteration of the provisions of any of the Bank Notes or of the Loan Agreement shall in any way impair or affect the foregoing terms. The provisions of this paragraph are for the sole and exclusive benefit of the holder or holders of the Bank Notes and shall not affect the rights and obligations of the Company and the holder of this note as between themselves.

The Company covenants and agrees that, subject to the provisions of the preceding paragraph hereof, it will duly and punctually pay or cause to be paid the principal amount of and interest on this note as and when the same shall become due and payable and at the place and in the manner provided herein, and that all payments of the principal amount of and interest on the Notes and all prepayments, if any, shall be made *pro rata* as between the Notes originally issued to Pennsalt and the Notes originally issued to Olin, so that the amount paid at any time on account of the principal amount of or interest on the Notes originally issued to Pennsalt shall bear the same proportion to the amount paid at such time on account of the principal amount of or interest on the Notes originally issued to Olin as the then unpaid principal amount of all the Notes originally issued to Pennsalt bears to the then unpaid principal amount of all the Notes originally issued to Olin.

Subject to the foregoing provisions, this note is subject [fol. 1236] to prepayment in the manner aforesaid, at the election of the Company, in whole at any time or in part from time to time, at the principal amount thereof, without premium, and accrued and unpaid interest thereon to the date of such prepayment.

No failure or delay on the part of the holder of this note in exercising any right hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any such right hereunder prevent any other or further exercise thereof, or the exercise of any other right hereunder.

No recourse shall be had for the payment of the principal amount of or interest on this note, or for any claim based thereon, against any stockholder or officer or director, as such, of the Company.

In Witness Whereof, the Company has caused this note to be signed in its name by its President or one of its Vice Presidents and its corporate seal to be hereunto affixed and attested by its Secretary or one of its Assistant Secretaries, all as of the day and year first above written.

Penn-Olin Chemical Company, by ——, ——, President.

Attest:

——, ——, Secretary.

[fol. 1237] Exhibit B

(Plan to be supplied.)

[fol. 1238] Exhibit C

Penn-Olin Chemical Company

% Subordinated Note

$——

, 19—.

Penn-Olin Chemical Company, a Delaware corporation (herein called the Company), for value received, hereby promises to pay to the order of —————— the principal amount of —————— on demand, and to pay interest on the unpaid principal amount thereof at the rate of ——% per annum from the date hereof, payable semiannually on

——— and ——— in each year. Payment of the principal of and interest on this note will be made at the principal office of the Company in Wilmington, Delaware, in such coin or currency of the United States of America as at the time of payment is legal tender for the payment of public and private debts.

This note is one of a duly authorized issue of notes of the Company (herein called the Notes), of like tenor and effect except as to date, payee and principal amount, all issued or to be issued in accordance with the provisions of an Agreement dated as of ——— 1961, among the Company, Pennsalt Chemicals Corporation (herein called Pennsalt) and Olin Mathieson Chemical Corporation (herein called Olin).

So long as ——— (herein called the Bank) shall have any commitment under the Loan Agreement dated ———, 1961, between the Company and the Bank (herein called the Loan Agreement) and until all of the notes (herein called the Bank Notes) issued pursuant to the Loan [fol. 1239] Agreement have been paid in full, the Company will not be obligated to make, and the holders of the Notes will not take or receive from the Company, in any manner, payment of the whole or any part of the Notes or security therefor; provided, however, that, so long as no event of default defined in the Loan Agreement shall have occurred and be continuing, interest on the Notes may be paid and received in accordance with its terms. Upon any distribution of assets of the Company to creditors upon any dissolution or winding-up or total or partial liquidation or reorganization of the Company, whether voluntary or involuntary, or in any bankruptcy, insolvency, receivership or other proceedings, all principal, interest and premium, if any, due upon the Bank Notes shall first be paid in full before the holders of the Notes shall be entitled to receive or retain any payment or distribution in respect thereof. Upon any such dissolution or winding-up or liquidation or reorganization, the holder of this note irrevocably authorizes the holder of the Bank Notes to file on behalf of the holder of this note any and all claims, proofs of debt, petitions, consents and other documents, and any payment or distribution of assets of the Company of any kind or

character, whether in cash, property or securities, to which the holder of this note would be entitled, shall be paid, by the Company or by any receiver, trustee in bankruptcy, liquidating trustee, agent or other person making such payment or distribution, direct to the holder of the Bank Notes to the extent necessary to pay all the Bank Notes in full before any payment or distribution is made to the holder of this note. Notwithstanding the foregoing provisions, if, upon any such dissolution or winding-up or liquidation or reorganization, any payment or distribution of assets of the Company of any kind or character, whether in cash, [fol. 1240] property or securities, shall be received by the holder of this note before all the Bank Notes are paid in full, such payment or distribution will be held in trust for the benefit of, and shall be paid over to, the holder of the Bank Notes for application to the payment of the Bank Notes until all the Bank Notes shall have been paid in full. No extension or renewal or alteration of the provisions of any of the Bank Notes or of the Loan Agreement shall in any way impair or affect the foregoing terms. The provisions of this paragraph are for the sole and exclusive benefit of the holder or holders of the Bank Notes and shall not affect the rights and obligations of the Company and the holder of this note as between themselves.

The Company covenants and agrees that, subject to the provisions of the preceding paragraph hereof, it will duly and punctually pay or cause to be paid the principal amount of and interest on this note as and when the same shall become due and payable and at the place and in the manner provided herein.

Subject to the foregoing provisions, this note is subject to prepayment, at the election of the Company, in whole at any time or in part from time to time, at the principal amount thereof, without premium, and accrued and unpaid interest thereon to the date of such prepayment; provided, however, all prepayments of this note, and others of the same issue, shall be applied in such manner as to equalize the unpaid portion of the principal amount of the Notes originally issued to Pennsalt and the unpaid portion of the principal amount of the Notes originally issued to Olin,

and thereafter all such prepayments shall be made *pro rata* as between the Notes at the outstanding which were originally issued to Pennsalt and the Notes at the outstanding which were originally issued to Olin.

[fol. 1241] No failure or delay on the part of the holder of this note in exercising any right hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any such right hereunder prevent any other or further exercise thereof, or the exercise of any other right hereunder.

No recourse shall be had for the payment of the principal amount of or interest on this note, or for any claim based thereon, against any stockholder or officer or director, as such, of the Company.

In Witness Whereof, the Company has caused this note to be signed in its name by its President or one of its Vice-Presidents and its corporate seal to be hereunto affixed and attested by its Secretary or one of its Assistant Secretaries, all as of the day and year first above written.

Penn-Olin Chemical Company, By ——, ——, President.

Attest:

——, ——, Secretary.

[fol. 1242] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 184

Extract from—Policy and Planning Council Meeting No. 1

Date—January 6, 1960
Members—Messrs. Clark, Clem, Drake, LaLande, McPresent Whirter, Shanaman, Walker and Willits
Others—none
Present

III. Joint Ventures

a. Chlorates—Eastern Plant

Mr. Drake reported that this project is still alive and that it appears as if a joint venture is the only profitable way of doing it. Mr. Shanaman said a decision should be made as soon as possible because we are losing $80,000 per year on the 2,000 tons we give to Mathieson to hold a position in the Eastern market.

[fol. 1243] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 185

To: Mr. S. de J. Osborne at 460 Park Avenue
From: E. Block at Baltimore
Subject: Sodium Chlorate

January 22, 1960

Copy to: T. S. Nichols w/a
J. O. Logan w/a

The attached sheets were left with us by the Pennsalt group as to their ideas on a sodium chlorate plant. Pennsalt is completely mobile as to their ideas on location, marketing, etc., but do specify, as we agree, the plant, because of its high power consumption, must be in the T.V.A. area. We have another meeting with Pennsalt on February 11th and

before that time we intend to show you our own analysis of this picture as justification in moving forward. If we are in complete agreement on the February 11th date we would like to make a public announcement without delay.

E. Block

EB:hbd
Enc.

[fol. 1244] In United States District Court

Plaintiff's Exhibit 186

Pennsalt—Olin Mathieson: Sodium Chlorate
January 25, 1960
File
A. H. Clem
D11 L 14 2-X
Confidential

A meeting held in Olin-Mathieson's New York office Thursday, January 21st, to discuss the possibility of a joint venture between Pennsalt and O-M on sodium chlorate. Attending the meeting were Messrs. Ed Block and John Logan, of O-M, and Messrs. Drake, Land and Clem, of Pennsalt.

It was decided the following questions should be resolved prior to a second meeting to be held in Olin's offices on February 11, 1960, at 10:00 A.M.:

1. Plant Location—Is there a significant freight differential between Calvert City, Kentucky and Chattanooga, Tennessee?
2. Cell—What is the best sodium chlorate cell on a cost performance basis? O-M asked whether the Pennsalt cell is better than the Krebs cell.
3. Operations—After considerable discussion it was agreed that probably the best arrangement would be for Pennsalt to make the product and O-M to sell it. The possibility was suggested that Pennsalt might act as a sales agent in certain geographic areas. It was also agreed from an operational standpoint that John Logan would review the Sun-Olin venture to see if

this would be a pattern that might be followed from a legal standpoint in setting up this joint venture.

It was agreed that probably the best name for the new company would be the "Penn-Olin Corporation" or "Penn-Olin Chemicals Corporation."

It was also agreed that a decision would have to be reached on this matter in the next three or four weeks and, therefore, definite answers to the above items should be available by the February 11th meeting.

[fol. 1245] After returning to Philadelphia I asked Russ Sloan to make the freight analysis on Calvert versus Chattanooga and at least two other key cities in the southern United States. I then asked Al LaLande to determine as much information as possible regarding the best cell to be used in this joint venture. I believe the other questions raised at the meeting are matters of policy to be resolved between Messrs. Drake and Block.

AHC/eh

[fol. 1246] In United States District Court

Plaintiff's Exhibit 188

January 29, 1960

Mr. C. L. Williamson, Baltimore
J. G. McMullen, Baltimore
Sodium Chlorate Market Information

Messrs. J. G. Johns,
C. W. Frost,
W. W. Northgraves,
V. Woodside.

Confirming our recent discussion we are submitting preliminary market information with respect to Sodium Chlorate consumption. This study is confined to consumption in the Pulp & Paper industry only.

The attached tabulation lists all locations which are consuming Sodium Chlorate or have chlorine dioxide generating facilities under construction. Two columns of figures are shown: one indicating the annual consumption of

sodium chlorate on the basis of capacity operation of the chlorine dioxide generating facilities, and the other indicating our best estimate of annual consumption as of this date.

The foregoing figures have been developed by consultation with Walt Northgraves. His estimates of present consumption are based on all factors known to him. In some cases figures are derived from his intimate knowledge of actual chlorine dioxide production and in other cases estimates are derived by knowledge of total bleaching capacity, number of stages of chlorine dioxide bleaching employed, and estimates of percentage capacity operation.

I feel that Mr. Northgraves' estimates are the best available in this office within the limitations of the information available to him. However, as an additional check on consumption figures I am sending a copy of this presentation to Vernon Woodside with the request that he review the estimated consumption figures against his own estimates, calling on individual District Managers when necessary to supplement his own information.

By carbon copy of this memorandum Vernon Woodside is requested to make his comments and suggested revisions to Charlie Frost no later than Tuesday, February 2. Mr. Frost will then put together the entire picture and bring it to you for final determination of the consumption numbers to be used.

All concerned should be advised that no inquiries should be made to any potential consumers of Sodium Chlorate in connection with this study. This study is to be based entirely on information available to us within our own organization.

In view of the time limitations you have set we will have no opportunity to make any estimates of other applications for Sodium Chlorate beyond the pulp bleaching application.

J. G. McMullen

Enc.

[fol. 1247]

SODIUM CHLORATE CONSUMER'S PULP & PAPER INDUSTRY (EXCEPT FAR WEST)

1 T ClO_2 req. 1.28 T Chlorate

	Process Used	Annual Consumption - Tons: Estimated Actual Consumption	Annual Consumption - Tons: Based On Capacity Operation
ALABAMA			
Container Corp. of America - Brewton	OMCC	2450	3670
Coosa River Newsprint - Coosa Pines	"	1220	1840
Gulf States Paper Co. - Demopolis	"	2450	014 - 3670
Scott Paper Co. - Mobile	"	610 9170	15520 1840
International Paper Co. - Mobile	"	1220	1840
Marathon Paper - Naheola	"	1220	3060
		9170	15530
FLORIDA			
Rayonier Inc. - Fernandina	Solvay	610 014-3670	014 - 1840
Buckeye Cellulose - Foley	OMCC	2450	7340 3670
Hudson Pulp & Paper - Palatka	Solvay	610 SOL-1220	SOL - 920
St. Regis - Pensacola	OMCC	1220	2760 3670
		4570	10100
GEORGIA			
Brunswick Pulp & Paper - Brunswick	OMCC	3060 014-4590	014-5570 3670
Rayonier Inc. - Jessup	Solvay	3680	4900
St. Mary's Kraft - St. Marys	"	2140 SOL-5820	SOL-8570 3670
Continental Can - Augusta	OMCC	1530	1840
		10,410	14080
LOUISIANA			
International Paper Co. - Bastrop	OMCC	1220 014 -	014 - 1840
International Paper Co. - Springhill	"	3060 4890	7350 3670
Crown Zellerbach-Bogalousa Div.	"	610	1840
		4890	7357
MISSISSIPPI			
International Paper Co. - Moss Point	OMCC	3060 014 -	014 - 3670
International Paper Co. - Matchez	"	3060 6120	7340 3670
		6120	7340
NORTH CAROLINA			
Reigel Paper Co. - Acme	Solvay	3680 - SOL	SOL - 3670
Champion Paper & Fibre - Canton	OMCC	2450 - 014	014 - 3670
		6130	7340
VIRGINIA			
West Va. Pulp & Paper - Covington	OMCC	1530 - 014	014 - 1840
Union Bag-Camp Paper Corp.-Franklin	Solvay	2450 - 501	501 3670
		3580	
ARKANSAS			

Coosa River Newsprint - Coosa Pines	"	1220			1840	
Gulf States Paper Co. - Demopolis	"	2450		014 -	3670	
Scott Paper Co. - Mobile	"	610		1520	1840	
International Paper Co. - Mobile	"	1220	9170		1840	
Marathon Paper - Naheola	"	1220			3060	
		9170			15550	
FLORIDA						
Rayonier Inc. - Fernandina	Solvay	610	014-3670	014 -	1840	
Buckeye Cellulose - Foley	OMCC	2450		7340	3670	
Hudson Pulp & Paper - Palatka	Solvay	610	501-1220	501 -	920	
St. Regis - Pensacola	OMCC	1220		2760	3670	
		4570			10100	
GEORGIA						
Brunswick Pulp & Paper - Brunswick	OMCC	3060	014-4590	014-5570	3670	
Rayonier Inc. - Jessup	Solvay	3680			4900	
St. Mary's Kraft - St. Marys	"	2140	501-5820	501-8570	3670	
Continental Can - Augusta	OMCC	1530			1840	
		10,410			14080	
LOUISIANA						
International Paper Co. - Bastrop	OMCC	1220	014 -	014 -	1840	
International Paper Co. - Springhill	"	3060	4890	7350	3670	
Crown Zellerbach-Bogalousa Div.	"	610			1840	
		4890			7357	
MISSISSIPPI						
International Paper Co. - Moss Point	OMCC	3060	014 -	014 -	3670	
International Paper Co. - Matchez	"	3060	6120	7340	3670	
		6120			7340	
NORTH CAROLINA						
Reigel Paper Co. - Acme	Solvay	3680	- 501	501 -	3670	
Champion Paper & Fibre - Canton	OMCC	2450	- 014	014 -	3670	
		6130			7340	
VIRGINIA						
West Va. Pulp & Paper - Covington	OMCC	1530	- 014	014 -	1840	
Union Bag-Camp Paper Corp.-Franklin	Solvay	2450	- 501	501	3670	
		3980				
ARKANSAS						
Crossett Paper - Crossett	OMCC	610	- 014	014	-1840	
International Paper - Pine Bluff	Solvay	3680	- 501	501	-4900	
		4290			6740	
TEXAS						
East Texas Pulp & Paper - Evadale	OMCC	1530	014 -	014 -	1840	
Champion Paper & Fibre - Pasadena	"	1530	3060	3680	1840	
		3060			3680	

OLIN
C256-2
Johns

[fol. 1248]

SODIUM CHLORATE CONSUMERS

PULP & PAPER INDUSTRY (EXCEPT FAR WEST)

	Process Used	Annual Consumption - Tons: Estimated Actual Consumption	Annual Consumption - Tons: Based On Capacity Operation
MARYLAND			
West Va. Pulp & Paper - Luke	OMCC	1840	3060
PENNSYLVANIA			
Glatfelter Paper Co. - Spring Grove	Solvay	1840 501 –	1840 501 –
West Va. Pulp & Paper - Tyrone	"	1220 3060	1840 3680
		3060	3680
MICHIGAN			
American Boxboard - Filer City	Solvay	920	1840
WISCONSIN			
Nekoosa-Edwards Paper Co. - Nekoosa	Solvay	610	1840
MAINE			
Penobscott Chemical Fibre - Great Works	Solvay	1220	1840
Eastern Corporation - Lincoln	"	920 501 –	1840 501 –
Div. of Standard Packaging		3580	7357
Oxford Paper Co. - Rumford	"	1840	3670
(Under Construction)		3980	7357
NEW YORK			
International Paper - Ticonderoga	Solvay	610	610
OHIO			
Kraft Corp. (not incl in totals)	Solvay	2450	3150
		63,960	96,440

TOTAL - OMCC - 37,930 — OMCC - 57,590
SOLVAY - 26,030 — SOLVAY - 38,850

MARYLAND				
West Va. Pulp & Paper - Luke	OMCC	1840		3060
PENNSYLVANIA				
Glatfelter Paper Co. - Spring Grove	Solvay	1840	501 -	1840 501 -
West Va. Pulp & Paper - Tyrone	"	1220	3060	1840 3680
		3060		3680
MICHIGAN				
American Boxboard - Filer City	Solvay	920		1840
WISCONSIN				
Nekoosa-Edwards Paper Co. - Nekoosa	Solvay	610		1840
MAINE				
Penobscott Chemical Fibre - Great Works	Solvay	1220		1840
Eastern Corporation - Lincoln	"	920	501 -	1840 501 -
Div. of Standard Packaging			3580	7317
Oxford Paper Co. - Rumford	"	1840		3670
(Under Construction)		3980		7317
NEW YORK				
International Paper - Ticonderoga	Solvay	610		610
OHIO				
Mead Corp. (not incl in totals)	Solvay	2450		3150
		63,960		96,440

TOTAL - OMCC - 37,530
SOLVAY - 26,030

OHIO
OMCC - 57,530
SOL - 38,890

OLIN
C-256 = 3 last
Johns

9776

[fol. 1249] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 189

Pennsalt Chemicals

Subject: Sodium Chlorate—Eastern Pulp and Paper Markets
Date: February 1, 1960
To: Mr. A. H. Clem
From: R. W. Sloan

This summarizes our recent discussion of the freight study comparing Calvert City, Kentucky, with Chattanooga, Tennessee, as alternate producing points for sodium chlorate for the pulp and paper market.

As the attached chart and mill location map show, Calvert City is somewhat at an economic disadvantage in terms of freight costs compared with Chattanooga. Neither site compares favorably with the present producers in Mississippi: Hooker at Columbus and Am Pot at Aberdeen.

Although we considered the four or five permutations of the markets to be supplied from either Chattanooga or Calvert, we agreed that the optimum analysis lay in a consideration of the total Eastern market.

In the analysis of the Eastern market we assumed that sales would be evenly distributed throughout the market and in the same proportion as the installed capacity for chlorine dioxide bleaching. On this basis the "freight penalty" of Calvert would be $1.65 per ton higher than at Chattanooga. Assuming a 25,000 ton per year production and sale at Calvert the maximum freight penalty would be about $41,000 per year.

Significantly we do not include in this analysis the freight advantage that would be incurred by the production and sale of sodium chlorate from Calvert to other, non pulp and paper markets. For example, the tonnage sale of sodium chlorate for the weed killer market-rail right-of-way. Another qualitative example is the sale of some portion of the plant capacity as potassium chlorate to the match industry located in the geographic crescent extending from central Ohio southwestward to St. Louis.

[fol. 1250] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 190

Date: February 3, 1960.

Olin Mathieson Chemical Corporation
Inter-Office Memo

From: JGJ:bd
Subject: Sodium Chlorate Project

The following basis was used for determining the sales estimates furnished Mr. Williamson in the attached memorandum:

1. 1959 rates consumption as furnished by Mr. Northgraves for those destinations in Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, Virginia, Arkansas, Texas, Maryland, and Pennsylvania were totaled for Solvay and OMCC installations. This gave a total consumption rate of 38,000 tons per annum—OMCC design; 20,000 tons per annum—Solvay design.
2. We estimated that in the first year of operation (1962) we would be able to contract for 1/3 of the OMCC tonnage and 1/5 of the Solvay tonnage. Since there is a considerable difference in equalization to these various destinations between Calvert City and Chattanooga, this was reduced to 10,000 tons for the year 1962 to afford selectivity in freight absorption in event initial 1962 capacity was installed at 10,000 tons. A second estimate of 17,500 tons of sales for 1962 was given in event a decision is reached to install entire 25,000 ton capacity immediately. This estimate visualizes obtaining the maximum possible tonnage in the low freight absorption zones which would be supplemented by additional high equalization tonnage in the area not so favorable to Calvert City and Chattanooga.
3. For the year 1963 we estimated a total of sales of 20,000 tons, based on a 10% increase in consumption at those points we were already serving due to utilization of excess ClO_2 capacity already in place,

the remaining 9,000 tons increase to come from greater participation in the same accounts plus an expansion of our sales effort into areas of less favorable freight equalization to the extent required.

We estimated 25,000 tons of sales by 1963 as being possible should we make an initial decision to install 25,000 tons capacity immediately. This would require a maximum effort on our part and would require that we achieve near 50% of the tonnage required at OMCC designed plants plus 25% of the tonnage involved at Solvay designed plants within our natural marketing area. This also assumes a growth rate of 5% per annum in ClO_2 bleaching over the next five years compared with a growth rate averaging approximately 10%-12% per annum over the past five years.

To the extent that we might be unable to achieve our objectives in our natural marketing area, we would find it necessary to penetrate Pennsylvania, New England and Wisconsin markets at a reduced net return. On the other hand, if marketing factors in the Pulp Industry bring about a more rapid utilization of in-place capacity, we should be able to achieve our second year objective of 25,000 tons per year on a more favorable basis.

J. G. Johns

[fol. 1251] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 191

Confidential

Minutes of Meeting

Pennsalt-Olin Mathieson: Sodium Chlorate

Date: February 4, 1960
Time: 10:00 A.M.
Present: Olin Mathieson, John O. Logan, C. L. Williamson, Joseph Wood, Dr. William Gardner.
Pennsalt, Dr. W. A. LaLande, A. S. Woodard, E. H. Karr, W. K. Earnest, W. C. Willits, E. E. Tuttle, A. H. Clem.

The meeting convened in the Board Room with all of the above named in attendance. After proper introductions the first order of business was to discuss the project sales, earnings, return on investment and cash flow figures as developed by our engineering and accounting group. Olin Mathieson was in substantial agreement with these figures and felt that they were definitely in the ball park. They also agree with the incremental tonnages of 10,000 tons the first year, 20,000 tons the second year and 25,000 tons the third year of operation.

After this brief meeting the group split into two sections, one made up of the technical people present and the remainder of the group, consisting of John Logan, C. L. Williamson, W. C. Willits, E. E. Tuttle and A. H. Clem, reconvened to discuss the letter of intent and the legal and financial aspects of the joint venture. The minutes that follow pertain only to the discussions of this latter group.

The first matter discussed was the subject of plant location. Our freight studies were compared with theirs and it appears that Chattanooga has a freight advantage on shipments to customers of between $41,000 and $75,000, depending upon the actual location of the customers. The former figure assumes pro rated distribution throughout the entire markets of the paper industry east of the Rockies. The latter figure assume shipments in the south only which would more logically be served by a southern

chlorate facility. In contrast to this, Chattanooga has a $1.20 salt freight disadvantage, which on 15,000 tons of salt becomes $18,000. This means that the net freight advantage at Chattanooga is in the range of $23,000 to $57,000. We naturally indicated that the plant service facilities already available at Calvert would certainly more than offset the freight disadvantage. Olin Mathieson countered by indicating that they plan a facility at Chattanooga or nearby, [fol. 1252] which would have similar service to Calvert and, therefore, the PennOlin venture could purchase the service at that location probably as economically as they could at Calvert. We indicated we would certainly want a guarantee that such services were going to be available before thinking about any location but Calvert.

The next order of business was to review the letter of intent as proposed by Pennsalt versus that proposed by O-M. This led to a discussion of whether or not PennOlin was to be a "paper" corporation or an actual entity. O-M had been thinking the latter, whereas Pennsalt's letter of intent leaned toward the former. It was at this stage of the game that we entered into a lengthy discussion regarding the philosophy of the venture. Rather than dwell on the discussions themselves, the final conclusions reached were:

1. PennOlin should be permitted to pursue the field of chlorate chemistry, i.e., the project should not be restricted to sodium chlorate but should include other chlorates and derivatives therefrom.
2. The letter of intent should primarily be concerned with the agreement between Pennsalt and Olin Mathieson to establish PennOlin and then PennOlin should be the organization to decide process to be used, the plant location and the sales agent or agents to be employed. The letter of intent was therefore revised to permit this flexibility.

A. H. Clem

AHC/eh
Copies: D11 L9 T30 W1

[fol. 1253] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 192

NI 4-2680

Drake
2/4/60
D11-W1

1. OM Finance Plant
2. Pennsalt build & operate plant at a fee
3. OM sell output except to Chipman & Ag. Chem on which Pennsalt to get a commission on Sales
4. Pennsalt's fee to be based upon
   a) Capitalize "know-how" land & services
   b) 200,000/yr. mgt. fee
   c) % of any reduction in costs due to identifiable efforts on our part e.g., yields

Assuming we capitalize our investment (know-how & services). We should show a 25% return before taxes.

[fol. 1254] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 193

For Board

PennOlin Chemicals (?) Corporation

It has been proposed that there be established a joint venture between Pennsalt and Olin Mathieson for the manufacture and sale of sodium chlorate in the eastern United States markets. This would be a 50/50 venture with each company putting up minimum equity (approximately one million each on estimated total costs of $6,500,000—remainder to be borrowed from a lending institution. Pennsalt, with its chlorate manufacturing know-how would be primarily responsible for production, while O-M with its chlorine dioxide generator will be primarily responsible for sales to the pulp and paper industry.

Preliminary estimates have been made which indicate a

possible return on Pennsalt's investment in the subsidiary of better than 30%. Talks are in progress with O-M technical and financial people in an effort to get these preliminary figures, as well as the legal and financial matters, firmed up in order that a letter of intent regarding this joint venture can be executed. A meeting will be held in New York February 11, in an effort to finalize the intent stage. If this can be accomplished—public announcement will then be made immediately. Timing is of extreme importance because the market area considered can only handle one more significant producer at this time.

[fol. 1255] In United States District Court

Plaintiff's Exhibit 194

2/4/60

Market & Fit. Review –

① No barge movement of nacls.

② T/C or T/T. – bulk – dry or liq.

③ Pro rating over entire market (US.)

	Columbia	Chatt.	Calv.	on 25000 t 1.65
Total Eastern	18.60	19.60	21.25	$41,250

Southern (max.) → $75000

④ Salt. – 3rd Calvert, 4th Chatt. } 15000 1.20 ~~[illegible]~~ $~~[illegible]~~ 18000

PENN-OLIN D73 Logan (1) of (3) Logan

Tenn River sites

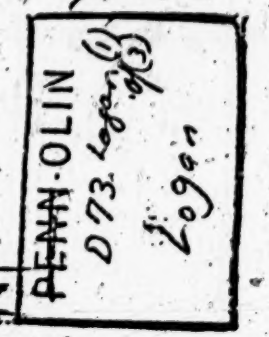
③ Pro rating over entire market (US.)

	Columbia	Chatt.	Calv.	on 25000 t
Total Eastern	18.60	19.60	21.25	1.65 $41,250

Southern (max.) → $75000

④ Salt. - 3 oz Calvert
4 oz Chatt. } 15000
1.20
$ ~~[illegible]~~
18000

PENN-OLIN
D73 Logan (1) of (3)
Logan



Tenn River sites

PS. prestige —

⑤ Charge for know-how - Sales

⑥ Letter of intent

$ - 1

$ - 2 — PS construct & run.

785

[fol. 1256]

Time to get ~~to~~ into oper'n. - ~~to~~ Pennsalt cell - ?
Vickers cell ?

@ both Calvert - Chattanooga.

P.S. - 16 mos. P.S. - 18 mos.
V.K. - 22 " V.K. - 22

Announcement -

Problem of "one-sided-nest -"

PENN-OLIN
273(2)
Logo

~~Is Another bank note forced to be contingent liability ?~~

12 visiting days

Tech. Review

1-2 days per stop } — 1. Visit { Penn Salt
Vickers Krebs — { office
2 plants }
Pechiney — — { 2 locs.
Ugine — }

PS - 16 mos.
V.K. - 22 "

P.S. - 18 mos.
V.K. - 22

Announcement -

Problem of "one-sided-nest -"

~~Is Snobbler bank note forced to be contingent liability?~~

12 visiting days

Tech. Review

1-2 days per stop } — 1. Visit { ~~Penn Salt~~ Vickers Krebs — { office 2 plants } Pechiney — { 2 locs. ugine - swedes

} 2. Cell decision up to 1 month

3. Build

Om + PD team — 2 - each Co.

PENN-OLIN
273(2)
Logo

PX 194
CA 2282
11-1-61

786

[fol. 1257]

PENN-OLIN
D 73(3)
Logan

Startup 4th Q. — 1961

- Power —
- Quality — (Chromate)
- Labor
- Bldg. Size

→ Points which must be clarified.

[fol. 1258] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 195

Memorandum

Olin Mathieson Chemical Corporation
Industrial Chemical Research

Research and Development Department

Visit to Pennsalt Chemical Corporation
Three Penn Center, Philadelphia, Pa.
Telephone No. LO 4-4700

February 4, 1960

Present: W. Drake, President, Pennsalt
Cooper Willits, Pennsalt
Ed Tuttle, Pennsalt
Al Clean, V.P. Sales, Pennsalt
Dr. W. (Al) LaLande, Jr., V.P. Research, Pennsalt, (Home AD 3-4196)
Al Woodard, Engineering, Pennsalt
Errol Karr, V.P., Western Operations, Pennsalt
Ken Earnest, Manager, Tacoma, Pennsalt
J. O. Logan, OMCC
W. C. Gardiner, OMCC
C. L. Williamson, OMCC
J. L. Wood, OMCC

Copies of an economic evaluation made by Pennsalt on a 25,000 tons per year Sodium Chlorate Plant were discussed. The price of $NaClO_3$ (8.09¢/lb.) includes freight equalization on Columbus, Miss., assuming the plant production was shipped in equal amounts to all market points from Calvert City, Ky., No significant difference could be discovered from OM studies. It was agreed that two locations are to be considered, Calvert City, Ky., and Chattanooga, Tenn. Both locations would be "across the fence" from an operating plant. If at Calvert City then Pennsalt would be the operator while OM would be the operator at Chattanooga.

Interest in a Penn-Olin joint venture was expressed and

the representatives broke up into two groups, one to consider business matters and the other technical matters.

The technical group consisted of Messrs. LaLande, Woodard, Karr, Earnest, Gardiner and Wood.

Gardiner stated that OM had been interested in $NaClO_3$ for the past several years and had a turnkey proposal from Vickers-Krebs. Laboratory investigations on Pt-Ti anodes showed that chlorate could be made efficiently at low power cost but the durability and economics of the Pt-Ti are not yet sufficiently established for consideration at this time. A proposal from Pechiney was mentioned. Copies of correspondence with Pechiney is being sent to Dr. LaLande.

[fol. 1259] OM was presented with a "Summary of Chlorate Cell Characteristics" by Pennsalt. See copy attached. A copy of the V-K proposal was given Pennsalt at this time and compared with the Pennsalt data. The following differences were noted:

1. Pennsalt cells are 5000 amperes; V-K cells are 30,000.
2. Pennsalt uses chlorine and caustic for pH control whereas V-K uses HCl.
3. Chromic acid use is 0.5 lb/ton $NaClO_3$ for Pennsalt vs. 2.7 for V-K. Pennsalt gets pure white crystals whereas V-K admits that their product is slightly yellow. This may be a very important point.
4. Pennsalt has gas at $.40/1000 cuft. with oil standby at Calvert City. V-K assumed Bunker C oil.
5. Pennsalt uses 6300 KWH (ac) electrolytic energy compared to 6100 for V-K. Mechanical power of 200 KWH for V-K was considered too low by Pennsalt. They think that it should be around 400.
6. Pennsalt considers the V-K operating labor too low. They use 3.5 manhours per ton $NaClO_3$.

Two locations are to be considered. One is at Calvert City, Ky., adjoining Pennsalt's plant. The other is to be assumed as level ground at Chattanooga, Tenn., next to another OM plant which does not yet exist. OM has established salt costs to be $6.72/ton fob barge at Calvert City and $7.92 at Chattanooga. Pennsalt has a lower salt cost by their contract but for comparison, the above costs are to be used.

Pennsalt stated that they were very well satisfied with

their cell and process but recognized that all available cells should be considered objectively. Pennsalt management has directed that the new plant is to be a minimum cost producer.

The following timetable was decided upon as the time estimated to get in operation after unrestricted orders were given to proceed.

Pennsalt cells at Calvert City	16 months
Pennsalt cells at Chattanooga	18 months
V-K cells at Calvert City	18 months
X cells at Calvert City	22 months
V-K cells at Chattanooga	19 months
X cells at Chattanooga	22 months

[fol. 1260] Dr. LaLande carried this timetable in to the business committee and reported back that the technical committee should continue to consider evaluating all available cells except that of Electro Reduction Company because of their affiliation with Hooker.

The following cells and locations will be considered for visiting by the committee of Pennsalt and OM engineers:

V-K—Paris, Finland, Southern France
Pechiney—Paris, St. Auban (France)
Ugine—Paris, Southern France
Phosphat Fabrik A. G. (Sweden).

No contacts are to be made until the joint venture is consummated.

W. C. Gardiner, vd.

Enc.
WCG/vd
2/25/60

Distribution: J. O. Logan, C. L. Williamson, J. L. Wood.

[fol. 1261]

IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 198

Willetts Drake Block Clem Logan CLW 2/11/60

Concluded: Plant @ C City — P. Propriates

Selling by OMCC.

Technical team: To proceed with investigation - Sec'y to be appr'd for notes

Press release - under

Derivatives - 1. Amm Chl.
2. Pot. Chl.
3. Pot perchlorate
4. Lith. perchlorate
5. Amm perchlorate

and other agreed upon products

PENN-OLIN C67

Insert A; Potassium Chlorate, and perchlorates

P.S. will allow P.O. to use present [illegible]

[illegible]

Selling by OMCC.

Technical team: To proceed with investigation - Secy to be appl. for notes

Press release - under

Derivatives - 1. Amm Chl.
2. Pot. Chl.
3. Pot perchlorate
4. Lith perchlorate
5. Amm perchlorate

and other agreed upon product

PENN-OLIN C67

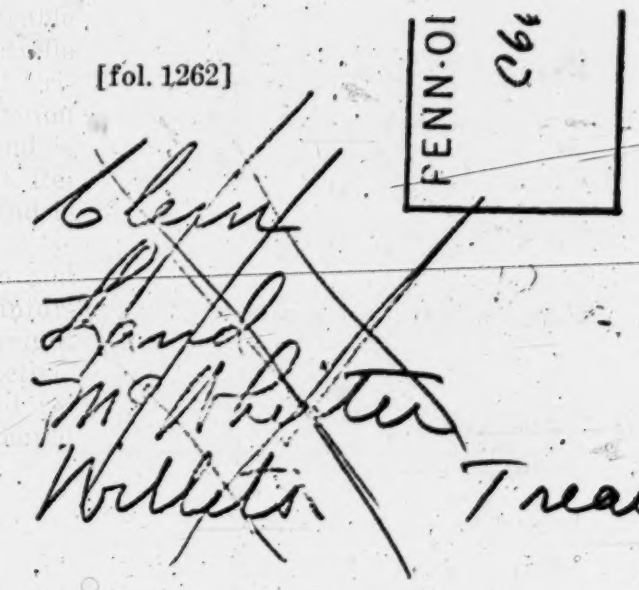
Insert A, Potassium Chlorate, and perchlorates

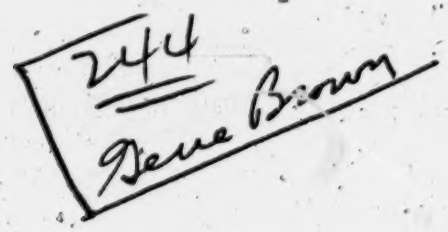
P.S. will allow P.O. to use present salt handling facilities

No cut of country - but minimum conflict.

793

[fol. 1262]





~~OFFICERS~~

Pres. McWHIRTER

V.P. J.O.L

~~V.P.~~

V.P.

Secy. WILLIAMSON

Treas. WILLETTS

OK

Board

1 J.O.L

2 @ L W

1. ~~M~~C WHIRTER James Cooper

2. WILLETTS

Willetts / Treas

~~OFFICERS~~

Pres. McWhirter

V.P. JOL

~~V.P.~~

Secy. Williamson

Treas. Willetts

OK

Board

1 JOL
2 CLW
3 JGJ
4 JLW

1. McWhirter James
2. Willets Cooper
3. Clem
4. Land

OK

Name: Penn-Olin Chemical Co, Delaware Corp.

OK

[fol. 1263] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 199

Pennsalt Chemicals

Subject: Penn-Olin Chemical Company
Date: February 12, 1960
To: File
From: William P. Drake
Copies to C20: L14: M44: W1

This morning in telling Fred Shanaman about the Penn-Olin arrangement, about which, incidentally, he was very enthusiastic, he indicated some concern regarding the appointment of Olin Mathieson as the sales agent for *all* chlorates. Fred feels that they are the natural agents for sale of chlorates to the pulp and paper industry. He does feel, however, that their lack of experience in the agricultural field in general, and the chlorates phase of this in particular, might warrant our pursuing the point we raised during our discussions yesterday, i.e., that in areas where we could do a better selling job we would in turn serve as Olin Mathieson's agent and, therefore, we would sell such chlorates as went into the agricultural chemicals field or the railroad weed-killing program.

I think this is something we should get on promptly and let's be sure to do so. Obviously, they won't have any chlorates to sell for some time yet, but the sooner we crystallize this, the better. I think Fred has a good point.

As an aside, just to show things can get fouled up by verbal communications, from the reports Fred got from Errol Karr, he was concerned that the appointment of Olin Mathieson might include the sale of all chlorates and perchlorates for Pennsalt and Penn-Olin, East and West. I assured Fred that this had no basis of fact; that we would continue to run our own show at Portland.

D.

WPD:m

[fol. 1264] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 201

Pennsalt Chemicals
Established 1850

Pennsalt Chemicals Corporation
Three Penn Center, Philadelphia 2, Pa.
Press Contact—Robert T. Mills LOcust 4-4700

PS-1554
For Release: A.M. Monday,
February 15, 1960

Pennsalt Chemicals and Olin Mathieson Announce Joint Chlorate Venture

Penn-Olin Chemical Company is now being formed as a joint subsidiary of Pennsalt Chemicals Corporation and Olin Mathieson Chemical Corporation, it was announced today by William P. Drake, president of Pennsalt, and Stanley de J. Osborne, president of Olin Mathieson.

The subsidiary, a $6,500,000 venture, has been organized to produce sodium chlorate and other chlorate compounds, and will be owned equally by the two corporations. Preliminary engineering has been completed, and construction is expected to start within 90 days on a 25,000-ton-a-year plant at Calvert City, Ky.

Pennsalt has produced sodium and potassium chlorate for many years at Portland, Ore. Recently it also built an ammonium perchlorate plant at the same location.

Olin Mathieson has pioneered the development of an efficient patented process for the generation of chlorine dioxide from sodium chlorate. More than 20 Olin Mathieson chlorine dioxide units are now in use in pulp and paper mills throughout the country, with their heaviest concentration in the natural marketing area of the new facility.

Sodium chlorate, in increasing demand from the pulp and paper industry, is also the major raw material used in the production of ammonium perchlorate, a solid rocket fuel oxidizer, and in the manufacture of defoliants and weed killers.

[fol. 1265] The board of Directors of Penn-Olin Chemical Company will consist of four members from each of the parent companies. Our members will be:

Albert H. Clem
W. Alfred LaLande, Jr.
James McWhirter
W. Cooper Willits

Officers of the new company will be:

President, James McWhirter, (Pennsalt)
Vice President, John O. Logan, (Olin Mathieson)
Treasurer, W. Cooper Willits, (Pennsalt)
Secretary, C. L. Williamson, (Olin Mathieson)

Headquarters of Penn-Olin Chemical Company will be at our offices here at 3 Penn Center, Philadelphia.

[fol. 1266] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 202

Subject: Sodium Chlorate
Date: February 17, 1960
To: All Salesmen
From: G. D. Grogan
Copies: B24, B29, G69, K48, M50, O4

You have all doubtless seen the notice in the papers about the forming of the Penn-Olin Corporation to build a Sodium Chlorate plant in Calvert City. Some of you will undoubtedly come across potential customers for Sodium Chlorate, and we might as well tell them right from the start that Olin Mathieson will be handling the sales end and we will handle the production.

I am extremely sorry that we won't be selling Sodium Chlorate because I think we could do a good job. Looking at it dispassionately, however, Olin Mathieson does have technical know-how and a patent position on chlorine dioxide bleaching which we do not have, and we have pro-

duction know-how which they do not have. Furthermore, there are a limited number of large customers, and there is no point in their organization and ours trying to sell the same material to the same people.

Even though this doesn't increase our sales opportunity, it should materially strengthen the Industrial Chemicals Division and this obviously works for our benefit.

GDG:k

G.

[fol. 1267] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 203

Extract from—Full Management Council Meeting No. 1
Date—February 18, 1960
Members Present—Messrs. Clark, Clem, Collins, Drake, Land, La-Lande, Lawson, Logue, McWhirter and Willits
Others Present—E. E. Tuttle

VI. Joint Ventures and Acquisitions

A. Penn-Olin

Penn-Olin

1. Some Council members stated that they had been asked several times what the reasons were behind the Penn-Olin joint venture.
2. The answer is that the venture is a perfect match, combining:
   - Our manufacturing know-how, with
   - The fact that Olin has a chlorate distribution organization in the South, and a patented chlorine-dioxide process for pulp bleaching which uses Sodium Chlorate.

[fol. 1268] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 205

Pennsalt Chemicals

Subject: Penn-Olin—Chlorate Technology
Date: February 26, 1960
To: Mr. J. McWhirter
From: A. S. Woodard
Copies to E6, K5, L9, L14, M32, S12

The following men, designated to evaluate the chlorate technology available to the company from various sources and to recommend that which should be used in the construction of the plant at Calvert, met at the Portland Works of Pennsalt on February 22nd and 23rd.

Olin Mathieson: W. C. Gardiner, J. Wood
Pennsalt Chemicals: E. H. Karr, A. S. Woodard

The purpose of the meeting was to provide the group with detailed knowledge of the Pennsalt technology and to provide opportunity for discussion with Pennsalt experts in chlorate technology at Portland significant factors useful in comparing our technology with that of others.

Mr. More had assembled at Portland for the full two days of the meeting Messrs. Earnest, Heitman, Istas, Werth, Locke, and Waterman and was himself present for the first day. Preparation for the meeting by Pennsalt of Washington Division personnel was excellent in all respects and contributed greatly to the facility with which the desired information was presented. There was repeated inspection of the chlorate plant as well as discussion.

We are convinced from the discussions at Portland and the subsequent discussions during the return East, that Messrs. Gardiner and Wood of Olin-Mathieson were impressed with the fundamental soundness of the Pennsalt technology, the operating skill as indicated at Portland, and feel that competitive technology will not likely show any substantial superiority and will, therefore, probably be most difficult to competitively evaluate. Both Gardiner and Wood, however, are firm believers in the general advantage

of large cells. In this instance, the feeling is that cells of the order of 15,000 to 30,000 amperes should have some advantage. Nevertheless, advantages in simplicity and facility [fol. 1269] in handling of the 5,000 ampere Pennsalt cell were strongly demonstrated at Portland. We were somewhat surprised at the detailed information requested by Olin-Mathieson personnel, particularly with regard to the process area. This included not only process information, such as stream analysis, but also equipment manufacturers and materials of construction. Subsequently, it was learned in talking with them that Olin-Mathieson has underway a two-year program to develop a 30,000 ampere cell based upon the use of platinum coated titanium anodes. The development cell for this program (a small cell) has operated quite well and offers considerable promise. However, they have experienced great difficulty with the processing or recovery side of the process and these difficulties have impeded the work on the cell. It is possible that they have learned enough in the visit at Portland to facilitate the development program. This program has not been stopped by Management (Mr. Block). Further, it was learned that Mathieson was about to enter into an agreement with Krebs under which Mathieson's continuing development work on chlorate would be combined with Krebs' general process as well as cell knowledge.

It seems likely that there will be questions and problems to be resolved eventually with regard to the independent development work on chlorate by Pennsalt as well as Olin-Mathieson. It is possible also that we should consider some acceleration of the cell development work initiated by Olin-Mathieson and substantially complemented by Pennsalt's experience with platinum covered titanium anodes since this work might well be applied in the second and third stages of the Penn-Olin plant even though this would be impractical under the present schedule for the initial installation.

A. S. Woodard

asw:jh

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SUPREME COURT, U. S.

Volume II

TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1963

No. 503

UNITED STATES, APPELLANT,

vs.

PENN-OLIN CHEMICAL COMPANY, ET AL.

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

FILED SEPTEMBER 27, 1963

PROBABLE JURISDICTION NOTED DECEMBER 9, 1963

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1963

No. 503

UNITED STATES, APPELLANT,

vs.

PENN-OLIN CHEMICAL COMPANY, ET AL.

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Volume II

INDEX

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
PLAINTIFF'S EXHIBITS—Continued		
206—Memorandum from G. D. Grogan to J. McWhirter, dated February 29, 1960	1270	801
208—Memorandum from J. G. Johns to J. O. Logan, dated March 7, 1960	1272	802
209—Memorandum from E. E. Tuttle to File, dated March 9, 1960	1274	804
210—Memorandum from Russell Hopkinson to S. de J. Osborne, dated March 9, 1960	1276	807
215—Memorandum from G. D. Grogan to A. H. Clem, dated March 23, 1960 with Memorandum from A. H. Clem to G. D. Grogan, dated March 25, 1960 and Memorandum from G. D. Grogan to A. H. Clem, dated March 31, 1960	1277	809

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
PLAINTIFF'S EXHIBITS—Continued		
218—Memo from Vernon Woodside to N. F. Wilmot, dated April 8, 1960	1280	811
220—Extract from Appropriations Committee Meeting No. 35, held April 13, 1960 (Pennsalt)	1281	812
223—Memorandum from J. G. Johns to R. C. Phillips, dated April 20, 1960	1282	813
225—Letter from J. McWhirter to Albert H. Clem, et al, dated May 2, 1960	1283	814
226—Memorandum from W. H. Brandt to J. G. Johns, dated May 6, 1960	1284	815
228—Memorandum from J. G. Johns to G. M. Cunningham, dated May 18, 1960 and Memorandum from G. M. Cunningham to O. J. Theobald, Jr., dated February 26, 1960	1285	816
229—Extract from Appropriations Committee Meeting No. 37, held May 26, 1960 (Pennsalt)	1287	817
232—Memorandum from W. H. Brandt to J. G. Johns, dated June 6, 1960 with a summary report of the information developed in the recent study on sodium chlorate (excerpts)	1288	818
241—Memorandum from A. S. Woodard to J. McWhirter, dated July 26, 1960 (excerpt)	1300	827
242—Memorandum from R. L. Dietrich to CAR Committee, dated July 28, 1960 with CAR Committee Discussion Penn-Olin Sodium Chlorate Plant, July 28, 1960	1301	828
243—CAR Committee Discussion, Penn-Olin Sodium Chlorate Plant, July 29, 1960	1304	830
244—Pennsalt Appropriation Request: "Penn-Olin Chemical Company, dated July 29, 1960	1306	832
245—Olin Special Meeting Minutes, August 1, 1960	1308	834
247—Memorandum from J. L. Wood to E. Block, subject, "Chlorate Plant Study Using Vicker-Krebs Bid", dated August 2, 1960 (excerpts)	1312	838
250—Letter from W. Cooper Willits to Walter F. O'Connell, dated August 19, 1960	1313	839
251—Memorandum from A. S. Woodard to J. McWhirter, dated August 22, 1960	1314	840
252—Extract of Financial and Operating Policy Committee, Minutes of Meeting of August 24, 1960 (Olin)	1316	842

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
Plaintiff's Exhibits—Continued		
253—Olin Mathieson Capital Appropriation Request, dated August 29, 1960	1317	843
254—Penn-Olin Chemical Company, Capital Appropriation Request, Sodium Chlorate Plant, Calvert City, Kentucky, Revised August 29, 1960 (excerpts)	1318	845
255—Wall Street Journal Extract—"Olin Mathieson to Build $13 Million Chemical Plant in Tennessee, August 29, 1960	1324	850
256—Letter from A. F. Pilling to Olin Mathieson, dated August 30, 1960	1325	851
257—Pennsalt Appropriation Request: Penn-Olin Chemical Company, September 1, 1960	1326	852
259—Memorandum from W. Cooper Willits to William P. Drake, dated September 6, 1960	1328	853
263—Memorandum from L. P. Sehell to C. C. Hightower, dated September 14, 1960 with the proposed 1961 Capital and Expense Budget	1330	855
265—Contract between American Potash & Chemical Corporation and Olin Mathieson, dated September 20, 1960 (excerpts)	1334	857
267—Telegram from Janet Lee to E Block, dated September 22, 1960	1336	858
268—Memorandum from R. L. Dietrich to "Those Present", Subject, "CAR Committee Meeting, September 20, 1960" (extract)	1337	859
270—Memorandum from J. M. McCullough to L. M. Shanaman, dated October 3, 1960	1338	860
271—Letter from J. McWhirter to John O. Logan, dated October 7, 1960	1339	861
282—Memorandum from W. Penfield to Collins, LaLande, Land, Lawson, McWhirter and Willits, dated November 23, 1960	1341	865
286—Memorandum from J. J. Garland to R. Kennedy, dated December 21, 1960	1342	866
287—Contract between Olin Mathieson and West Virginia Pulp & Paper Co., dated December 22, 1960 (excerpt)	1343	869
288—Letter from J. G. Johns to Roy Shanaman, dated December 30, 1960	1344	871
289—Letter from J. G. Johns to Roy Shanaman, dated December 30, 1960	1346	872
294—Minutes of First Meeting of Board of Directors of Penn-Olin Chemical Company, March 8, 1960	1347	874

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
PLAINTIFF'S EXHIBITS—Continued		
295—Memorandum from C. L. Williamson to James McWhirter, dated April 22, 1960	1353	880
299—Letter from W. Cooper Willits to Walter F. O'Connell, dated November 9, 1960	1354	881
300—Letter from Richard Bryce to W. Cooper Willits, dated November 11, 1960	1356	882
302—Letter from W. Cooper Willits to Walter F. O'Connell, dated December 23, 1960 (excerpt)	1357	883
303—Letter from Donald R. Jackson to W. Cooper Willits, dated December 29, 1960	1359	885
305—Letter from Edwin E. Tuttle to C. L. Williamson, dated January 6, 1961 (excerpt)	1360	886
306—Letter from C. L. Williamson to W. Cooper Willits, dated January 9, 1961	1361	887
308—Letter from C. L. Williamson to W. Cooper Willits, dated January 13, 1961	1362	888
309—Letter from Donald R. Jackson to C. L. Williamson, dated January 18, 1961	1363	889
310—Letter from W. Cooper Willits to Walter F. O'Connell, dated February 3, 1961	1364	890
311—Letter from DRJ to W. Cooper Willits, dated February 9, 1961	1365	891
312—Letter from W. Cooper Willits to Richard Bryce, dated February 10, 1961	1366	892
313—Letter from Edwin E. Tuttle to C. L. Williamson, dated February 17, 1961 enclosing copy of deposit slip	1367	893
314—Letter from W. Cooper Willits to Walter F. O'Connell, dated March 14, 1961	1369	897
315—Letter from Donald R. Jackson to W. Cooper Willits, dated March 21, 1961	1371	898
316—Letter from Edwin E. Tuttle to C. L. Williamson, dated March 23, 1961 (excerpt)	1372	899
317—Penn-Olin Bank Statement, dated April 5, 1960	1373	901
320—Penn-Olin Bank Statement, dated December 5, 1960	1374	902
322—Penn-Olin Bank Statement, dated February 6, 1961	1375	903
323—Penn-Olin Bank Statement, dated March 3, 1961	1376	904
324—Penn-Olin Bank Statement, dated April 5, 1961	1377	905
328—Penn-Olin Financial Statement as of April 11, 1960	1378	907
329—Penn-Olin Balance Sheet as of April 30, 1960	1379	908
330—Penn-Olin Balance Sheet as of May 31, 1960	1381	910

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
PLAINTIFF'S EXHIBITS—Continued		
336—Memorandum from C. V. Mayne to C. L. Williamson, dated February 27, 1961 with schedule showing pre-tax loss for month of January 1961	1386	912
337—Statement showing Penn-Olin Sodium Chlorate Sales and Earnings, January 1961	1388	914
338—Statement showing Penn-Olin Sodium Chlorate Sales and Earnings, February 1961	1389	915
339—Pennsalt Capital Investment Policy No. 1	1390	916
340—Statement showing Net Return on Shareholders' Equity, Pennsalt vs: Competition, May 3, 1961	1391	917
349—Letter from Derek Richardson to L. M. Shanaman, dated February 12, 1958	1392	918
352—Memorandum from F. C. Shanaman to Wm. P. Drake, dated March 12, 1959	1393	919
358—Memorandum from J. O. Logan to J. G. Johns, dated November 18, 1959	1394	920
359—Memorandum from J. G. Johns to J. G. McMullen, dated December 10, 1959	1395	921
364—Memorandum from J. O. Logan to W. F. O'Connell, dated August 11, 1960	1396	922
366—Electrochemical Survey Report, "Sodium Chlorate Cell with Platinized Titanium Anodes", dated December 14, 1960 (handwritten) (excerpts)	1397	923
376—Statistical Data (excerpts)	1400	927
Statement showing Shipments of Sodium Chlorate by Domestic Commercial Producers during 1960, by Regions	1400	927
Indexes for Sodium Chlorate and Industrial Chemicals Production	1401	928
377—Olin Interrogatories and answers Nos. 1, 5 and 66 and Pennsalt Interrogatories and answers Nos. 1, 5 and 47—Personnel (excerpts)	1402	928
378—Olin Interrogatories and answers Nos. 8 and 52—Chlorine Dioxide Processes and Installation (excerpts)	1416	937
379—Interrogatory No. 16—Pennsalt and Penn-Olin answers—Origin of raw materials	1420	940
Pennsalt Interrogatory No. 45 and answer—Treatment of Penn-Olin in Pennsalt Financial Statement (excerpts)	1421	941
382—Pennsalt Interrogatory No. 82—Pennsalt sodium chlorate Productive capacify (excerpts)	1422	942

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
Plaintiff's Exhibits—Continued		
385—Pennsalt Interrogatory 84—Pennsalt's Sales in the Southeast	1423	943
386—Olin Interrogatory and answer No. 76—Olin salesmen selling or soliciting sales of sodium chlorate	1427	944
387—Olin Interrogatory 13—Sodium Chlorate purchased from Pennsalt and Consumed by Olin	1429	945
389—Olin Interrogatory and answer No. 80—Olin's new capital investment projects in inorganic chemicals	1431	946
391—Olin Interrogatory and answer No. 27—Pennsalt competitors in hydrofluoric acid and calcium hypochlorite	1432	946
392 A and B—Excerpts from deposition of William P. Drake	1433	948
392 C—Excerpts from pretrial oral examination of William P. Drake	1643	1084
393—Excerpts from deposition of Fred C. Shanaman—direct	1689	1105
—cross	1765	1147
—redirect	1769	1149
394—Excerpts from pretrial oral examination of Albert H. Clem	1772	1151
396—Excerpts from deposition of William Cooper Willits	1784	1157
397—Excerpts from oral deposition of George T. Collins	1792	1162
398—Excerpts from deposition of James McWhirter—direct	1813	1171
—cross	1834	1181
399—Excerpts from pretrial oral examination of George Davidson Grogan	1837	1182
400—Excerpts from deposition upon oral examination of Hugh C. Land—direct	1860	1192
401—Excerpts from deposition of William Cecil Gardiner—direct	1890	1208
402—Excerpts from deposition of Stanley de J. Osborne—direct	1927	1228
—cross	1953	1239
—redirect	1960	1242
403—Excerpts from deposition of Derek Richardson—direct	1964	1245
404—Excerpts from deposition of Dr. Norman O. Stein—direct	1978	1251
405—Excerpts from deposition of Cecil L. Williamson—direct	1992	1257

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
PLAINTIFF'S EXHIBITS—Continued		
406—Excerpts from deposition of Dr. Bruno H. Wojcik—direct	2003	1262
407—Excerpts from deposition of Joseph Leonard Wood—direct	2139	1323
408—Excerpts from deposition of John O. Logan—direct	2193	1347
409—Excerpts from deposition of Russell Hopkinson—direct	2290	1401
410—Excerpts from deposition of James G. Johns—direct	2373	1437
411—Excerpts from deposition of Walter W. Northgraves—direct	2399	1447
412—Sodium Chlorate Data Stipulation, dated November 6, 1961 with Tables 1, 2, 3, 5, 6 & 7 attached	2437	1463
413—Nonchlorate stipulation, dated November 6, 1961 and Appendix A	2445	1471
414—General Stipulations, Set I (excerpts)	2450	1475
415—Memorandum from Peter Colefax to Board of Directors, subject, "New Sodium Chlorate Plant in Mississippi", dated February 12, 1957	2466	1484
420—Extract from Management Committee Meeting No. 103, June 25, 1959 (Pennsalt)	2471	1490
422—Memorandum from Kennett Lewis to C. C. Hightower, dated August 28, 1959	2472	1491
424—Memorandum from M. T. Ramstad to R. T. Mills, dated April 29, 1960	2473	1492
426—Extract of Financial and Operating Policy Committee, Minutes of Meeting of September 27, 1960 (Olin)	2474	1493
427—Extract from Appropriations Committee Meeting No. 41, October 14 and November 3, 1960 (Pennsalt)	2475	1494
428—Memorandum from Corporate Staff to E. Block, subject, "Staff Comment on Chemicals Division Whither Report", dated October 14, 1960 (extract)	2477	1496

Record from the United States District Court for the District of Delaware—Continued

	Original	Print
DEFENDANTS' EXHIBITS:		
1—Memorandum from R. J. Eastman to R. W. Sloan, dated November 11, 1958	2485	1503
2—Memorandum from P. C. Staples to H. C. Land, dated August 15, 1960 with letter from Perkins McGuire, Asst. Secretary of Defense to Mr. Errol H. Karr, dated August 9, 1960	2486	1504
11—Extract from Appropriations Committee Meeting No. 12, held December 23, 1958	2489	1506
12—Memorandum by GTC (Collins) data entitled "Sodium Chlorate—Calvert City", dated August 23, 1956	2490	1507
13—Memorandum from W. C. Gardiner to B. H. Wojcik, dated March 26, 1957	2491	1508
14—Memorandum from W. L. Huntington to G. R. Evans, dated January 17, 1958 (excerpts)	2493	1509
15—Memorandum from G. R. Evans to A. S. Woodard, dated January 31, 1958	2494	1510
16—Memorandum from J. O. Logan to C. W. Frost, dated January 31, 1958	2495	1511
21—Memorandum from W. C. Gardiner to Dr. B. H. Wojcik, dated December 11, 1958	2496	1512
22—Memorandum from C. W. Frost to J. O. Logan, dated April 14, 1959	2498	1514
23—Letter from John O. Logan to L. M. Shaaman, dated April 21, 1959	2499	1515
24—Memorandum from K. C. Frazier to W. A. King, dated May 1, 1959	2500	1516
25—Memorandum from R. R. Shively to W. A. King, dated July 28, 1959	2501	1517
30—Memorandum from A. H. Clem to File, dated January 29, 1960	2502	1518
32—Memorandum from L. S. Howe to Russell Hopkinson, dated February 18, 1960	2504	1520
33—Memorandum from H. J. Reed to R. Hopkinson, dated March 8, 1960	2507	1523
36—Memorandum from C. L. Williamson to R. Hopkinson, dated April 25, 1960	2509	1524
40—Penn-Olin Estimated Earnings and Return on Investment, Revised July 27, 1960 to Include Resale Operations and Alternate Capitalization Plan (excerpt)	2510	1526
41—Memorandum from A. S. Woodard to J. McWhirter, dated August 16, 1960	2511	1527

	Original	Print
Record from the United States District Court for the District of Delaware—Continued		
DEFENDANTS' EXHIBITS—Continued		
42—Memorandum from H. J. Reed to S. de J. Osborne, Staff Coordinating Committee, CAR Committee, dated August 22, 1960	2513	1528
45—Memorandum from George H. Nusloch, II to J. L. Pickens, dated November 9, 1960	2522	1537
49—Plaintiff's answers to Interrogatories 1-4 (Set II)	2524	1539
Opinion, Steel, J.	2530	1543
Order entering judgment	2601	1590
Notice of appeal to the Supreme Court of the United States	2603	1591
Order of the United States District Court extending time to docket case	2606	1592
Order allowing certiorari	2608	1593

[fol. 1270] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 206

Pennsalt Chemicals

Plaintiff's Grogan Exhibit 8-A

Subject: Ammonium Perchlorate
Date: February 29, 1960
To: Mr. J. McWhirter
From: G. D. Grogan
Copies To: B24, C20

I wonder if you could find out from Al Clem what our sales policy in the East should be on Ammonium Perchlorate. Who will sell the material produced at Calvert, and what should we do about inquiries in the meantime?

G.

GDG:k

P.S. Shall I go through channels or address Clem direct?

[fol. 1271] Ammonium Perchlorate

March 1, 1960
Mr. G. D. Grogan
J. McWhirter
B24 C20

We presume that you are under the impression Penn-Olin will produce ammonium perchlorate at Calvert, but actually such is not the case. Initially at least, all we contemplate manufacturing is sodium chlorate and sales will be handled through Olin.

There are a multitude of questions to be resolved in connection with the Penn-Olin arrangement and we should have a better concept of the division of responsibility after our preliminary meeting with Olin personnel at Baltimore on March 8th.

Insofar as obtaining information from Al Clem is concerned, we have absolutely no objection to your making direct contact with him, although obviously we should like to be kept informed.

——, ——.

JMcW:ram

[fol. 1272] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 208

March 7, 1960.

Mr. J. O. Logan, Baltimore
JGJ:bd, Baltimore

C. L. Williamson.

Sodium Chlorate Market Projections

Attached is a detailed market projection representing our best estimate of the maximum tonnages we could expect to ship the various categories of sodium chlorate consumers for the years 1962-1964 inclusive. Please note our comments below relative to each market category of consumer:

1) ClO_2 Market Penetration—Taking an estimated 61,000 t.p.a. 1960 sodium chlorate consumption for ClO_2 bleaching in this area, we have projected the maximum share of this market which we believe we can reasonably expect to acquire during the period 1962-1964 inclusive. Consumption data came from OMCC files and it is believed to be both conservative and accurate, although C & E News of 8/31/59 cited 31,000 t.p.a. requirement for ClO_2 pulp bleaching. Each consumer has been studied and an attempt made to give effect to present OMCC sales position, trade relations, record of technical assistance and sales relationship, as well as geographical proximity to competitor shipping points.

2) Increased Utilization Installed ClO_2 Capacity—The relatively small incremental cost of excess ClO_2 generating capacity has led to the installation of larger units which we estimate would require 96,000 t.p.a. sodium chlorate at capacity operation. In a great many instances the oversized generators were installed with future expansion of pulping, bleaching or other mill facilities in mind. We have estimated an increase in consumption averaging 5% per year over the next five years from this source, assigning 1/3 of this tonnage as OMCC potential.

3) New ClO_2 Capacity—Our technical and development people agree that the installation of new ClO_2 units has reached a plateau due to both economical and tech-

nological considerations. Two new units under construction are included in our basic 1960 projection. Two other mills now have ClO_2 under consideration (Bowaters Carolina and Northwest Paper), and a third (Gulf States, Tuscaloosa) is considering relocation and activation of a small unused generator. We have estimated new capacity to average about 5% for 1960 tonnage (3,000 t.p.a.) over the next five year period, assigning 1/3 of this tonnage as OMCC market potential.

4) Miscellaneous Industrial and Agricultural Markets —We are estimating Niagara Falls' captive requirement for sodium chlorate at about 2,000 t.p.a. over the next five years from Calvert City. Various surveys indicate an agricultural and industrial market of 25,000-30,000 t.p.a. for which the largest uses are weed killer preparations, defoliating preparations and chemical manufacturing. We have estimated a very modest penetration of this market during the initial three year period.

Conclusion: Certain risks such as the level of operations in the pulp industry, the effects of general business conditions, and the future of ammonium perchlorate for solid missile fuels could not be evaluated. However, these elements, together with relatively narrow use pattern of sodium chlorate, suggest the desirability of arranging for the broadest possible marketing responsibility in terms of geographical area and end use. We also recommend that arrangements be made for the maximum possible tonnage to be available from Portland during 1960 and 1961 to permit early penetration of desirable accounts and afford sales and technical personnel experience and training.

J. G. Johns.

[fol. 1273] Sodium Chlorate Market Projection

1) ClO_3 Market Penetration (Base Estimated 1960 Sodium Chlorate Consumption Rate)

1960 Consumption by State & Gen. Type				Estimated OMCC Sales Penetration		
State	OMCC Gen.	Sol. Gen.	Total	1962	1963	1964
Md.	2000 t.	— t.	2000 t.	500 t.	1000 t.	1000 t.
Va.	1500	2500	4000	500	1000	1000
N. C.	2500	3700	6200	1000	1500	2000
Tex.	3000	—	3000	500	1000	1000
Ark.	600	3700	4300	1000	1500	1500
Fla.	3700	1200	4900	1000	1500	2000
Ga.	4600	5800	10400	2500	3500	4000
La.	5000	—	5000	1500	2000	2000
Ala.	9000	—	9000	2500	3500	4000
Miss.	6100	—	6100	1500	1500	1500
Wisc.	—	600	600	200	200	200
Mich.	—	900	900	—	—	—
Me.	—	4000	4000	500	500	500
N. Y.	—	600	600	—	—	—
Total	38000	23000	61000	13200	18700	20700
2) Increased Utilization Installed ClO_3 Capacity				2000	1100	1200
3) New ClO_3 cap. @ av. 3000 t. Sodium Chlorate/yr.				2000	1000	1000
Total Est. OMCC Potential, Pulp Bleaching				17200	20800	22900
4) Misc. Ind. & Ag. Markets OMCC				2000	2000	2000
Captive N. F Herbicide and Ag. Formulators Ind. Consumers				700	1000	1500
				500	700	1000
Maximum Estimated OMCC Market Potential				20400	24500	27400
				15000	20	

Figures were proofread.

[fol. 1274] In United States District Court

Plaintiff's Exhibit 209

Penn-Olin—March 8 Meeting
March 9, 1960
E. E. Tuttle
M44-W1

1. Board Meeting:

A record of the first Board Meeting will be documented by the official minutes being prepared by Mr. Williamson. One additional item needed to complete these minutes will

be the text for the desired wording of the bank account resolution for the First Pennsylvania Company. We agreed to send Mr. Williamson this text.

2. Progress Reports:

In general, it was agreed that "Progress Reports" for Penn-Olin will consist of the meetings (and the records thereof) of the Coordination Committee. In addition, there may be formal reports on technical, financial, or legal matters (including those of a very confidential nature). Mr. Williamson had prepared a proposed distribution list for such reports which he agreed to forward to us (Mr. Willits) for our consideration.

3. Power Commitments, Sales Estimates and Plant Size:

Mr. McWhirter mentioned that an immediate problem would be contracting for future power requirements. This raised the question of the "phasing" of the construction of the plant, which in turn, raised the question of probable sales requirements. Mr. Johns reported "maximum estimated potential" sales figures which would call for a larger initial capacity than the originally-planned 10,000 ton-20,000 ton-25,000 ton schedule. Not only were these estimates maximum, but they were also based on chlorate being made available to Olin (either by Washington or some other source) during the 1961 construction period.

Before making any decisions in this area, Olin agreed to [fol. 1275] provide us with "reasonable" estimates of their chlorate needs for 1961 on. This they agreed to do within the next couple of days. We would then review this material in terms of our ability to supply from Washington their 1961 requirements, the power commitment question, and the construction timing question.

4. Method of Penn-Olin Operation

Mr. Logan reported that their thinking had changed on the most desirable method of operation for Penn-Olin. As of now, they were of the opinion that, at the outset, Penn-Olin should consist essentially of "this Board", or in other words, be a "paper" company. In effect, Penn-Olin would contract with Pennsalt to manufacture the chlorate (i.e., all

manufacturing personnel would remain on Pennsalt's payroll) and Penn-Olin would, in turn, contract with Olin to sell the material. All of this, of course, would be subject to "an agreed upon accounting system."

The above is in accord with our thinking but Mr. Logan cautioned that this had not as yet been checked finally with Mr. Block.

5. Preliminary Expenses

It was agreed that, for the time being, we would continue the practice of each company carrying on their own books (but segregating same) the expenses related to Penn-Olin Project. These would be limited to out-of-pocket expenses such as travel, outside legal fees, etc. They would not include salaries.

6. Future Meetings

Mr. Willits was to arrange for a meeting with Olin on financing and Mr. McWhirter was to arrange for a trip to Calvert.

Mr. Wright advised it would not be necessary to hold an Annual Stockholders Meeting this April.

As will be reported in the Board Minutes, the next Board Meeting was set for April 12 at 10:00 AM in Philadelphia.

EET:EF

M44—Per your request, this is what I recall from the meeting.

[fol. 1276] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 210

Olin Mathieson Chemical Corporation

Date: March 9, 1960.

To: Mr. S. de J. Osborne
At 460 Park Avenue
From: Russell Hopkinson
At 460 Park Avenue
Subject: Report of

Sodium Chlorate Evaluation Committee

Copy to: Mr. Edward Block,
Mr. D. W. Drummond,
Mr. W. F. Otterstrom,
Mr. J. E. Williams,
Mr. J. O. Logan,
Mr. C. L. Williamson,
Mr. H. J. Reed,
Mr. J. R. Sanderford,
Mr. L. S. Howe.

A meeting of the above Committee was held today, at which the following were present:

Evaluation Committee:

Russell Hopkinson, Chairman,
Edward Block
D. W. Drummond
W. F. Otterstrom
J. E. Williams

Chemicals Division:

J. O. Logan
C. L. Williamson

Also present:

H. J. Reed
J. R. Sanderford
L. S. Howe

RH—See me pls on my return, SdeJO.

4/26/60.

Stan wants me to call Williamson and explain that he is all for the engineering study but wants it clear that the whole project does not have a go ahead until the CAR covering it has been submitted and signed. Presentation should include studies on 1. Tech Feasibility, 2. Economics, 3. Financing.

The Chemicals Division elaborated on the background and economics of their proposed joint venture with Permsalt and brought us up to date on the status of the investigation by the joint technical team. They also answered a number of questions concerning plant location and market analysis.

RH gave above memo to WMson, 4/26/60.

Mr. Block stated that Mr. Osborne, prior to the appointment of this Committee, had given him approval to proceed, and he therefore assumes that this Committee's responsibility is to examine and endorse Mr. Osborne's action.

No.

From the information at hand, this Committee gives this endorsement on the understanding that the final report of the technical group confirms the estimated net profit on gross investment (9.7%) indicated at this meeting.

Russell Hopkinson, Chairman.

[fol. 1277] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 215

Pennsalt Chemicals

Subject: Sodium Chlorate
Date: March 23, 1960
To: Mr. A. H. Clem
From: G. D. Grogan
Copies to B24, M44, S24, W63

Harry Snolens tells me that Hooker has told some of the textile mills they are developing a simple, practical method for cotton bleacheries to use chlorine dioxide generated from sodium chlorate. I have always understood that this was a real good textile bleaching agent and it could conceivably make some inroads into Hydrogen Peroxide.

If we are going to be able to sell chlorate out of our new plant into the textile field, I think we should start some investigation of this possibility and perhaps talk to Mathieson to see what they have done in the past. On the other hand, if Mathieson is going to have complete control of sales, maybe there isn't much point in our wasting time with it.

Do you suppose there is any way we can work ourselves into selling sodium chlorate to the textile industry and perhaps have nothing to do with the sales to the paper industry?

G

GDG:k

[fol. 1278] Penn-Olin

Sodium Chlorate
March 25, 1960

Mr. G. D. Grogan
A. H. Clem
your memo March 23
M44

Although the Penn-Olin sales agreement with Olin Mathieson has not been finalized I believe the general understanding is that they will be responsible for moving the

output of the plant. We did raise the question regarding areas where Pennsalt may have something to offer regarding distribution, i.e., the agricultural chemicals field. I believe under those circumstances Pennsalt would probably become Olin Mathieson's agent.

If the textile field requires a generation system for producing chlorine dioxide from sodium chlorate then I think Olin Mathieson would be the logical supplier since they would be involved in the technical services, etc., concerning generation of the chlorine dioxide. In other words, I think Pennsalt might fit into the sales act where sodium chlorate is used as such—for example, agricultural chemicals, but when chlorine dioxide generation is involved I think Olin Mathieson is the logical supplier.

AHC/eh

[fol. 1279] Pennsalt Chemicals

Subject: Sodium Chlorate
Date: March 31, 1960
To: Mr. A H. Clem
From: G. D. Grogan
Copies To: L8, M44, M50

I don't think we should let Olin Mathieson elbow us out of the textile chemical use of Sodium Chlorate unless we have no choice about the matter. They have information on chlorine dioxide generation, but we have lots of information on textile bleaching and I feel we could do as good a job as they. It is particularly important to us because the Sodium Chlorate may displace some Hydrogen Peroxide. Maybe we could both sell the stuff into the textile field.

GDG:k G.

[fol. 1280] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 218

Olin Mathieson Chemical Corporation

April 8, 1960.

Mr. N. F. Wilmot, Chicago
Vernon Woodside, Baltimore
Waldorf Paper Products Company
Missoula, Montana
Mr. J. P. Hagan,
Mr. H. S. Hopkins,
Mr. J. G. Johns.

Attached please find a copy of a letter to Mr. Johns from Mr. Hagan which is self-explanatory. We believe that for the best interests of Olin Mathieson we should start the plant up at Missoula with or without the participation of Penn Salt. We are presently working through Dorr Oliver in Hartford, Conn., as indicated by Mr. Hagan's letter.

It would be appreciated if you would follow this up in the St. Paul office of the subject when calls are made there by your men.

In view of our impending production of sodium chlorate, it is imperative that we have installation of our chlorine dioxide process in as many mills as possible and that we do everything within our power to retain and enhance the general acceptance of our process by the paper industry.

I would appreciate your comments.

[fol. 1281] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 220

Extract from—Appropriations Committee Meeting No. 35
Date—April 13, 1960
Members Present—Messrs. Clark, Clem, Drake, LaLande, Tuttle and Willits
Others Present—Messrs. Collins and McWhirter

VI. PSW-75-P—"Sodium Chlorate Plant Expansion" Performance Report

PSW-75 Performance Report M32

1. Actual performance for the year 1959 showed a return of 28.5% versus a claimed return of 46.6%.

2. One of the reasons given for the lower than claimed return was the necessity for making shipments to the East. Since actual production was still less than capacity, however, the Committee requested clarification to the following two points:

a) Could the production diverted to the East actually have been sold in the Pacific Northwest? Also, what is the 1960 budget of production, budget of sales to the East, and budget of sales in the Pacific Northwest?

b) Discounts of $51,869.

[fol. 1282] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 223

Olin Mathieson Chemical Corporation

April 20, 1960.

Mr. R. C. Phillips, Baltimore
JGJ:bd Baltimore
Sodium Chlorate
J. O. Logan,
J. G. McMullen,
C. L. Williamson.

Planning for the Penn-Olin sodium chlorate facility has advanced to the point where it appears that sodium chlorate production will be available from Calvert City the third or fourth quarter of 1961. As you are aware, Olin Mathieson will act as sales agent for Penn-Olin.

I am passing the above information along to you in connection with the Niagara Falls sodium chlorate requirement for 1961. We would like to be in a position to begin supplying this requirement from Calvert City as soon as specification material is available and hope it will be possible for you to negotiate your 1961 contracts with this in mind.

J. G. Johns.

[fol. 1283] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 225

Pennsalt Chemicals Corporation

Three Penn Center Philadelphia 2, Pennsylvania

May 2, 1960.

Messrs. Albert H. Clem, J. G. Johns, W. Alfred LaLande, Jr., John O. Logan, Cecil L. Williamson, W. Cooper Willits, J. L. Wood.

Gentlemen:

Prompted by several random questions recently directly to our attention, we wish to urge the various committees charged with developing programs covering policy and/or procedures for Penn-Olin to schedule preliminary meetings at an early date.

While we fully recognize that all concerned have other major responsibilities, we cannot ignore the fact that if we procrastinate on the development of a sound framework governing Penn-Olin operations, we will not only risk unnecessary confusion, but also jeopardize the overall success of the venture. If we wait until July to give consideration to these matters, some of us may be rocketed into outer space.

The questions which prompted the above admonition had to do with process development work at our Portland plant and a possible overlapping of sales programs. Inasmuch as both of these areas will come under surveillance of pertinent Penn-Olin committees, we have deferred decision pending adoption of an overall program by our Directors.

We would very much appreciate written notification whenever any committee or sub-committee schedules a meeting.

Sincerely, J.Mc.

JMcWhirter
ram
5/13 or 16

[fol. 1284] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 226

Date: May 6, 1960.

To: Mr. J. G. Johns At Baltimore
From: W. H. Brandt At Baltimore
Subject: Sodium Chlorate—Herbicide Market

Copy To V. Woodside

With reference to our discussion of May 4 on sodium chlorate end uses, I propose to do a little more investigation of the herbicide market to round out the picture with respect to drum loading facilities at the plant.

Next week I will go out to Chicago to talk to Nalco and the Association of American Railroads. While there I intend to call upon several marketers of herbicide formulations to determine whether or not they are using sodium chlorate in their operations.

The week of May 16 I will be in New York for the annual meeting of CMRA, May 17 and 18—Hotel Biltmore, and I will spend the balance of the week calling on herbicide formulators in the New York and New Jersey areas. At that time I will contact Chipman at Boundbrook and Reade at Jersey City.

Enclosed are itineraries covering the next two weeks.

W. H. Brandt

/jf
encl.
cc. J. G. McMullen.
7/8/60 vd.

[fol. 1285] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 228

May 18, 1960.

C. H. Larson

Mr. G. M. Cunningham, Pasadena
JGJ:bd, Baltimore
Penn-Olin Chemical Company—Sodium Chlorate

Some time ago you wrote to Bill Theobald inquiring about the availability of chlorates and perchlorates out of Pennsalt's Portland, Oregon plant for sale by you on the West Coast.

While it is possible that such an arrangement can be effected at some time in the future, we do not, for a number of reasons, wish to raise this subject at the present time. Perhaps after Calvert City is in operation and both we and Pennsalt have had an opportunity to examine our sales positions, either OMCC or Penn-Olin will want to make arrangements to handle any surplus that may be available at Portland. Meanwhile, I would suggest that nothing whatsoever be done to create the impression on the part of Pennsalt or West Coast purchasers that we will, or plan, to market these materials from Portland in the West Coast area.

J. G. Johns.

[fol. 1286] Olin Mathieson Chemical Corporation

February 26, 1960.

(Dict. 2/25/60)
To: Mr. O. J. Theobald, Jr. at Baltimore
From: G. M. Cunningham at Pasadena, Calif.
Subject: Penn-Olin Chemical Co.—Sodium Chlorate

Copies To: Johns
2/29

We received the February 15 Public Relations release regarding formation of the above company for production of chlorates and perchlorates at Calvert, Ky.

We assume OMOC will sell part of the production of this plant. Based on this assumption, will we be allowed to sell

chlorates and perchlorates produced by Pennsalt Chemicals at their Portland, Oregon plant? We have some accounts who might be interested in purchasing these chemicals from us. Will you kindly advise our position on the above. We do not think we will be competitive on the Calvert, Ky. production, particularly in the Pacific Northwest.

G. M. Cunningham.

GMC:vll

Handwriting

J. G. Johns:

You had best advise Geo. This is an interesting point as to whether we should sell or could sell PS material in addition to PennOlin Material.

OJT 2/29.

[fol. 1287] In United States District Court

Plantiff's Exhibit 229

Extract from—Appropriations Committee Meeting No. 37
Date—May 26, 1960
Members Present—Messrs. Clark, Clem, Drake, LaLande, Tuttle and Willits
Others Present—Messrs. Lawson, McWhirter and Smith

IV. PSW-075-P—"Sodium Chlorate Plant Expansion"—Additional Information

1. The Performance Report on this project was reviewed at Appropriations Committee Meeting No. 35. In answer to a question raised at that time, Mr. More stated that the "production diverted to the East in 1959 actually could not have been sold in the Pacific Northwest." He also stated that the $51,869 shown as discounts was made up of the following:

Adjustment to Eastern Price Schedule on 1460 tons to Olin Mathieson	$24,831
5% discount allowed on $540,760 sales	27038
	$51,869

[fol. 1288] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 232

Olin Mathieson Chemical Corporation

June 6, 1960.

To: Mr. J. J. Johns at Baltimore
From: W. H. Brandt at Baltimore
Copy To: J. G. McMullen, V. Woodside, Library—Baltimore, Library—New Haven.
Subject: Sodium Chlorate Market Study

Enclosed is a summary report of the information developed in the recent study on sodium chlorate.

If you have any questions or would like to have further information developed, please advise.

W. H. Brandt.

/jf

[fol. 1289] Introduction

In conjunction with the sodium chlorate joint venture of Olin Mathieson and Pennsalt, the General Sales Manager, Heavy Chemicals, asked Market Research to obtain current information concerning the product. Of special interest was the method of shipment, i.e. bulk or containers, to major markets other than the pulp and paper industry.

This brief study has been completed and the results are reported herein.

[fol. 1290] Summary

1. Production of sodium chlorate in 1959 was 87,700 tons as compared to an installed capacity of 100,400 tons.

2. Estimated sodium perchlorate production for 1959 was 17,900 tons. This material is used to manufacture ammonium perchlorate, perchloric acid, other perchlorates and chlorates with the exception of potassium chlorate, which is produced directly.

3. Estimated production of potassium chlorate for 1959 was 5-6000 tons. This material goes almost entirely to the match industry.

4. The estimated end uses for sodium chlorate for 1959 were as follows:

Use	%
Pulp & paper bleaching	38.1
Other chlorates & perchlorates	26.1
Herbicides (weed control)	20.3
Chemical intermediates & processing	4.6
Defoliation (cotton & soybean)	3.1
Metallurgical (ore processing)	2.4
Other uses (bleaching flour, textiles, & fats, dealers, misc. & exports)	5.4

5. The 1959 herbicide market was estimated at 16,500 tons, apportioned as follows:

a. Railroad Weed Control—10,000 tons
b. Noxious Weed Control— 6,500 tons

(croplands—by state regulation)

6. The sodium chlorate purchased by companies servicing railway clearance programs is delivered predominantly in bulk, either by tank car or covered hopper car.

7. Weed control season for railroads runs from April to October with peak business in June.

8. The straight chlorate used in noxious weed control in various states is purchased primarily in 100 pound containers either direct from the producer or through distributors.

[fol. 1291] 9. The special formulations, some containing chlorate, are purchased in 50 and 25 pound containers.

10. The principal area of chlorate usage for noxious weed control is the midwest. The six states below are the major consumers:

State	Rank in Use
Iowa	6
Kansas	1
Minnesota	5
Nebraska	3
Oklahoma	2
South Dakota	4

11. Imports jumped from 1300 tons in 1958 to 2600 tons in 1959. Most of this material is going to one firm, Pacific Engineering Products Co., Henderson, Nevada, for the production of ammonium perchlorate.

12. The current price quoted in Oil Paint & Drug Reporter for sodium chlorate, carload, works, 350 pound drums is 9¢/pound, one hundred pound drums 1/4¢/pound higher. No price is quoted for bulk.

[fol. 1292] Recommendations

Based on the results of this study it is recommended that:

1. Drumming facilities be of nominal size but equipped to handle a variety of container sizes such as 50 pound, 100 pound, 350 pound and even 600 pound.
2. If PennOlin plans to sell to the railroad weed control service companies bulk storage should be sufficient to permit handling heavier shipping schedules in April, May and June.

[fol. 1293] General Discussion

Since the plant capacity of the proposed PennOlin sodium chlorate facility will be large enough that sales outlets other than to the pulp and paper industry will have to be sought, the sales management of heavy chemicals section requested Market Research to obtain up-to-date information concerning the marketing of the product, with particular interest in methods of shipping, so that recommendations could be made to the engineering department concerning drum loading facilities.

It was known from previous study that the principal non-captive market outside of pulp and paper bleaching was herbicides. Consequently the field survey was directed toward this area to develop as much information as possible along the lines mentioned above. Concurrent with this effort general information regarding the total chlorate market was collected so that management would have available the latest data.

The results of the survey will be discussed under the following subheadings:

a. Production
b. Estimated end use pattern
c. Field survey
d. Imports
e. Prices

(a) Production

In a report published in August 1959 the Business and Defense Service Administration had estimated 1959 production of sodium chlorate would be 80,000 tons. Actual production was 87,700 tons. The table below gives a breakdown of information on the various products.

[fol. 1294]

Table I

Product	State & number Plants		Capacity Aug. 1959	Production M Tons '57	'58	'59 (est)	'59 (act)
Sodium Chlorate	Total Plants	5	100,410 tons	59.1	67.25	80	87.7
	Mississippi	2					
	Nevada	1					
	New York	1					
	Oregon	1					
Potassium Chlorate	Total Plants	3	10,300 tons	(a)	(a)	(a)	
	Nevada	1					
	New York	1					
	Oregon	1					
Sodium Perchlorate	Total Plants	5	23,980 tons	(a)	(a)	17,900	(b)
	Mississippi	1					
	Nevada	2					
	New York	1					
	Oregon	1					
Ammonium Perchlorate	Total Plants	4	24,700 tons	(a)	(a)	14,500	(c)
	Mississippi	1					
	Nevada	2					
	Oregon	1					

(a) Statistics and estimates are not shown because data might reveal operations of individual firms.

(b) Tons of sodium chlorate to produce this material must be calculated as an end-use.

(c) Produced from the sodium perchlorate.

In the case of potassium chlorate information was developed that the estimated production for 1959 was 5-6000 tons.

(b) End Use Pattern

In addition to the detailed breakdown of products and producing locations the government report contained an estimated sodium chlorate consumption by end-uses for 1958 and 1959.

In a discussion with BDSA personnel an estimated 1963 end use pattern was also obtained for the major categories. These data are summarized in Table II.

[fol. 1295]

Table II

Use	1958 Tons	1958 Percent	1959 Tons	1959 Percent	1963 Tons
Pulp & paper bleaching	29,000	41.1	31,000*	38.1	45–50,000
Herbicides (weed control)	16,100	22.8	16,500	20.3	17,750
Other chlorates and perchlorates	13,244	18.8	21,252	26.1	20,000
Chemical intermediates and processing	3,600	5.1	3,693	4.6	4,100
Defoliation (cotton and soybeans)	2,300	3.3	2,500	3.1	3,100
Metallurgical	1,846	2.6	1,980**	2.4	3,000
Bleaching (textiles, flour, fats, etc) and dyes	1,148	1.6	1,225	1.5	
Dealers	1,396	2.0	1,434	1.8	
Miscellaneous	1,290	1.8	1,339	1.6	
Export	609	0.9	415	0.5	
Total	70,541	100.0	81,288	100.0	

* Reported to be 34–35,000 tons

** Reported to be 2,500 tons

(c) Field Survey

As a result of information developed through the Department of Commerce the major merchant area to investigate outside of the pulp and paper field was the herbicide market. Consequently field calls were made on formulators of herbicides to determine whether they marketed chlorate containing products and, if so, how they purchased their material.

It was found that herbicide use fell into two major categories:

A. Railroad track right-of-way clearance
B. Weed control programs in a number of states

Discussions with companies involved in railroad clearance pointed up that there are five major companies doing this type of service. They will either furnish the formulation to the railroads or contract to carry out the spraying operation. The companies involved are:

Allied Chem. Corp., Gen. Chemical Div.—New York
R. H. Bogle Co.—Alexandria, Va.
Chipman Chemical Co.—Boundbrook, N.J.
Nalco Chemical Co.—Chicago, Ill.
Reade Manufacturing Co.—Jersey City, N.J.

[fol. 1296] Of the five companies Nalco uses only a small amount of chlorate, having chosen to develop other herbicide systems which they feel are as effective at a comparable cost.

It is estimated that some 10,000 tons of material were consumed in this use in 1959. Reade and Bogle accounted for about 2500 tons and Nalco may have consumed as much as 500 tons. This leaves a minimum balance of 7000 tons to be used by General and Chipman. Based on the information uncovered it is estimated that Chipman accounted for at least 65% of this tonnage.

These companies all purchase the largest part of their chlorate dry in bulk and transfer to liquid storage. In some instances they purchase drummed material to balance out requirements toward the end of the season so as to minimize carry-over inventories.

The season for track clearance runs from April through October depending upon the section of the country and the growing season. However the peak of the business is generally in late May through June.

Approximately 6500 tons of chlorate are estimated to be consumed in weed control programs in the various states. Interviews held with agronomists at Federal and State level revealed that it is being used to control noxious perennial weeds such as Johnson grass and vine weed. The latter grows in clumps in field crops such as wheat and sorghum and is killed by spreading dry chlorate on the infested acreage. No crop is harvested from the treated area but the balance of the field can be used. Chlorate is also used to control weeds on non-croplands and as a soil sterilant around the base of power transmission lines. The general right-of-way for transmission lines requires some selectivity in killing so that grass or some green cover can be left behind. Consequently the phenoxy compounds find use for the overall areas.

[fol. 1297] The heaviest consumption of sodium chlorate is in the six mid-western states of:

	Rank in Use
Iowa	6
Kansas	1
Minnesota	5
Nebraska	3
Oklahoma	2
South Dakota	4

Other states where some chlorate is consumed are:

Colorado	Montana
Indiana	Ohio
Missouri	Wisconsin
Wyoming	

Generally the chlorate is purchased in 100 pound containers, either direct or through distributors.

There has been a tendency to move in the direction of formulated compounds, some of which contain chlorate, that are safer to handle. These products are being packaged in 50 and 25 pound units to permit easier handling at the consumer level. Pressure is being put on the producers of chlorate to make their units smaller also.

Consumption of chlorate in the herbicide field is limited pretty well to the five major railway clearance service companies and in the states where regulations exist on noxious weed control. In some thirteen calls other than the above mentioned not one formulator was found who was marketing a chlorate containing compound. Because most of the herbicide companies are selling to markets where selectivity of kill is required the organic herbicides predominate. A few made sodium arsenite when required to furnish a "total kill" material. It was pointed out that this would be the general situation throughout the country.

[fol. 1298] The only other segment of the merchant market about which any information was developed was the uranium ore processing industry. Here it was found that Pennsalt is shipping a special 600 pound open head drum. They are believed to be the only producer using that particular size drum.

(d) Imports

Import figures were obtained for the last three years and are given below:

Year	Quantity	Av. Price/lb.
1959	2600 tons	5.5¢
1958	1320 tons	5.9¢
1957	331 tons	6.9¢

The price is FOB dock, country of origin and 3/4¢/pound duty must be added. Over 85% of the 1959 imports were from France, the balance were from Sweden. How-

ever, in 1959 59% came from Sweden and in 1957 all material came from Sweden.

The sharp increase in imports can be attributed primarily to one company, Pacific Engineering Products, Henderson, Nevada. According to sources of information in Washington this company is in the ammonium perchlorate business and since it represents a group of dissidents from American Potash as well as Pennsalt they have to go abroad for their sodium chlorate. Thus at this time imports don't appear to be an influencing factor on the domestic market, particularly the pulp and paper area which is PennOlin's primary target.

(e) Prices

The market prices for sodium chlorate as quoted in May 30, 1960 Oil Paint and Drug Reporter are:

[fol. 1299] Sodium Chlorate—crystal, 350 lb drums

c.l., works—$.09/lb.
l.c.l., works—.095/lb.
in 100 lb. drums only—1/4¢/lb. higher

The interesting thing about the above pricing is that no quotations are given for bulk shipments in spite of the fact that the major part of the material is shipped that way. A check with Oil Paint and Drug Reporter revealed that they had never been given a bulk price by the producers. Lack of such a market price indicates that it might be being used as a bargaining tool in the case of major accounts.

[fol. 1300] IN UNITED STATES DISTRICT COURT

PLANTIFF'S EXHIBIT 241

Pennsalt Chemicals

Subject: Penn-Olin—Manufacturing Cost Projection—5 Years
Date: July 26, 1960
To: Mr. J. McWhirter
From: A. S. Woodward
Copies To: N22—2X

As requested, we have endeavored to estimate the probable increased manufacturing cost of the Penn-Olin chlorate plant over the next five years. Using information obtained from Purchasing and other sources and applying our own judgment factors, we estimate that the manufacturing cost in the fifth year will be approximately $161,000 per year greater than projected in our basic estimate forwarded to you July 6, 1960. The attached tabulation shows the increased cost per year expressed as percentage of the base estimate for all items on which increased costs are anticipated.

You will note, in summary, that we have used from 5 to 10% increase for salt and other chemicals consumed including graphite. A 10% increase for fuel has been assumed (equivalent to 5% on steam costs) and a 25% increase in labor costs has been assumed based on the past five years experience at Calvert. All indirect costs which are based on labor have been increased by the same 25%. Repair materials have also been increased by 25%. After analysis of the fuel costs in the proposed TVA contract and discussion with TVA of present and past TVA fuel costs, we are of the opinion that increased cost of power need not be projected for the first five years.

It is interesting to note that this estimated increase in manufacturing cost is approximately 6% of the basic manufacturing cost estimate. Further, assuming that the costs increase at a linear rate over a five year period, the average increase is $80,500 per year which would result in a reduction of the net operating revenue expressed as a percentage of total investment drops from 15.3% (Mr. Niederriter's

financial analysis) to 14.2%. One further observation, at the cost projected for the fifth year, an increase in production of 8% would offset the increased cost.

A. S. Woodard

asw:jh
attach.

[fol. 1301] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 242

Olin Mathieson Chemical Corporation

Date: July 28, 1960.

To: Permanent Members of CAR Committee at 460 Park
From: R. L. Dietrich at 460 Park
Subject: Penn-Olin Investment

Attached is a draft of the Committee Discussion to accompany the CAR for Penn-Olin when it goes to Mr. Osborne. In view of the possibly controversial nature of the problem, I believe you would like to review it before submission. Harlow Reed is out of town and has not seen this but will be asked to approve the final draft. May I have your approval or comments.

R. L. Dietrich.

RLF/ak
Att.

Received August 1, 1960; W. F. O'Connell.

[fol. 1302] CAR Committee Discussion

Penn-Olin Sodium Chlorate Plant
Car #172-001-377B

July 28, 1960.

The Penn-Olin Sodium Chlorate Proposal was discussed at the CAR Committee Meeting of July 27, 1960. The Committee unanimously recommended that the project should be rejected. This recommendation was based on the following:

1) The Penn-Olin evaluation shows only 8.1% return on gross investment without financing expense or corporate overhead and at full capacity operation. The evaluation appears to be an optimistic appraisal and actual return would probably be even lower. The Chemicals Division re-evaluation showing 9.3% seems to be based on undue optimism, for a return figure. Original approval in principle was given on the condition that the return should be at least as good as then estimated (9.7%).
2) Even if the optimistic predictions were achieved, the project would reduce the present overall return on investment of the Chemicals Division. If an improvement in earnings is to be achieved, new projects must be above the current average.
3) Recent five-year contracts for Sodium Chlorate offered by Hooker guarantee that there will be no price increase but allow a price decrease. Our entry into the market almost certainly would reduce prices resulting in an even lower return on investment or even a loss.
4) Sodium Chlorate is in surplus and substantial quantities have been offered to us. There appears to be no incentive for other producers to go into the business at this time.
5) There has been little doubt that the product could be sold. We would gain very little business in other products by having sodium chlorate available. We would probably even lose some caustic business by the use of trade relations to sell chlorate.
6) The profit margin on chlorate is so low that it can only be produced as an adjunct of a Chlorine-Caustic plant in the TVA area. If at a future date, prospects look better, we can build a chlorate plant tied to the proposed chlorine-caustic plant in the Chattanooga area. This would have freight and operating advantages over the Calvert City location.
[fol. 1303] 7) Pennsalt does not appear to be enthusiastic and probably would be willing to drop the project. The letter of intent provides for sharing of expenses to date as the only obligation.

8) A letter has been received from the Department of Justice questioning the joint venture. This letter adds to the undesirability of the project but it does provide a convenient excuse not to go thru with it.

After a long and detailed discussion and study, the Committee recommends that the project be dropped. The return of investment is very low and there is no other compelling reason to enter the business. If the situation improves later, the project could be revived either as a joint venture with Pennsalt or independently by OMCC.

R. L. Dietrich, Secretary—CAR Committee.

RLD/ak

[fol. 1304] In United States District Court

Plaintiff's Exhibit 243

CAR Committee Discussion
Penn-Olin Sodium Chlorate Plant
CAR #172-001-377A and B

July 29, 1960.

The Penn-Olin Sodium Chlorate Proposal was discussed at the CAR Committee Meeting of July 27, 1960. The Committee unanimously recommended that the project should be rejected. This recommendation was based on the following:

1) Alternate proposals have been submitted. CAR 377A was an evaluation by Penn-Olin and CAR 377B a more optimistic treatment submitted separately by the Chemicals Division.

2) The Penn-Olin evaluation shows an estimated return of 8.1% on a gross investment of $3,714,500, OMCC interest (50%) beginning in 1963 at 100% capacity operation and before corporate overhead and financing charges.

The Chemicals Division evaluation shows 9.3% return on a gross investment of $3,589,500 OMCC in-

terest (50%) on the same basis. The CAR Committee considers that the Chemicals Division evaluation is not realistic and the Committee does not agree with the Chemicals Division that the Penn-Olin evaluation is extremely conservative.

3) The Sodium Chlorate Evaluation Committee on March 9, 1960 endorsed the Penn-Olin project on the understanding that the final report of the technical group would confirm the estimated net profit of 9.7% indicated as of that date. Such confirmation not having been established, the CAR Committee now recommends disapproval of the project on the basis that if an improvement in earnings is to be achieved, new projects must show indicated returns substantially above the present average. The Industrial Chemicals Division average return in 1959 was 8.4% on gross investment before corporate overhead and financing charges.

4) Recent five year contracts for sodium chlorate offered by Hooker guarantee no price increase, but contain a decline clause which allows a price decrease. Our entry into the market might stimulate buyers to attempt to reduce prices, and if accomplished, would result in an even lower return.

[fol. 1305] 5) Solvay, who have been selling as sales agent on a commission basis, for American Potash, have cancelled their contract. American Potash are looking for another corporation to sell the chlorate for them. It is understood that they have approached us and offered us 14,000 tons per year, if we are interested.

6) The Committee was advised that it looked quite possible to sell the entire output of the plant within two years from the day they started. It is the opinion of the Committee that sale of the chlorate would not attract much business in other products. It is also likely that we might even lose some present existing business which we have with Hooker by our entry into the business. Some of our apparent increases in chlorate sales might be offset by reducing the sale of other products in certain accounts

where trade relations balances are rigidly adhered to.

After a long and detailed discussion and study, the Committee recommends that the project be dropped. The return on investment is very low and there is no other compelling reason to enter the business. If this project is disapproved, because of our exposure to Pennsalt know-how, we should not proceed independently for a considerable period of time. The Committee does not see any reason to expect that we would want to do so.

R. L. Dietrich, Secretary, CAR Committee.

[fol. 1306] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 244

Penn-Olin Chemical Company

July 29, 1960.

Approved by Board 8/3/60

$1,000,000 is requested for investment in the Penn-Olin Chemical Company. This investment will represent a 50% stock ownership (with an equal amount being contributed by the Olin Mathieson Chemical Corporation), and the balance of the required money (i.e. approximately $6 million) will be raised by outside borrowed capital. These funds will be used by Penn-Olin for the construction of a 25,000 ton sodium chlorate plant adjacent to our Calvert City operation. This is in accordance with the program originally discussed at the February 3, 1960 Board Meeting.

Investment, Earnings & Return on Investment

	10 Year Average	
	Penn-Olin	Pennsalt
Total Investment	$7,429,000	$1,000,000
Project Operating Earnings (i.e. before interest, excess depreciation and taxes)	1,135,000	—
Dividend to Pennsalt (net profit available after debt service)	—	130,000
Return on Investment (before tax basis)	15%	25%
Earnings per share after taxes	—	3.1¢

In addition to the return on Pennsalt's investment noted above (which will come from dividends) it is conservatively estimated that Pennsalt will benefit to the extent of over $100,000 per year in reduced overhead and other costs in its Calvert City plant operations, thus making the actual total return on Pennsalt's investment higher than 25%.

Pennsalt has produced sodium and potassium chlorate for many years at Portland, Oregon and the new Penn-Olin plant will utilize Pennsalt technology. Olin Mathieson, in turn, has a strong market position in chlorates since they have developed an efficient patented process for the generation of chlorine dioxide from sodium chlorate, which process is in use in pulp and paper mills throughout the country, and especially the Southeast.

[fol. 1307] In addition to the increasing demand from the pulp and paper industry, sodium chlorate is also the major raw material used in the production of ammonium perchlorate (a solid rocket fuel oxidizer) and in the manufacture of defoliants and weed killers.

* * * * * *

Assuming approval of this project by both the Pennsalt and Olin Mathieson Boards, authorization is requested to proceed with the sale by Pennsalt of the necessary land to Penn-Olin (approximately 13.5 acres at current appraised value). Negotiations will also be initiated in connection with Penn-Olin borrowing the $6 million mentioned above.

[fol. 1308] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 245

Penn-Olin Sodium Chlorate Plant

A special meeting was called by Mr. Osborne to discuss the Penn-Olin proposal CAR 172-001-377B on August 1, 1960.

Present were:

Chemicals Division	Corporate
E. Block	S. de J. Osborne
J. O. Logan	R. Hopkinson
J. G. Johns	W. F. Otterstrom
J. L. Wood	H. J. Reed
J. Statz	W. F. O'Connell
	D. W. Drummond
	G. Grand
	W. E. Hanford
	J. R. Sanderford
	R. L. Dietrich

Mr. Osborne called the meeting to resolve the differences of opinion concerning the proposed Joint Venture with Pennsalt in the construction of a Sodium Chlorate Plant as an adjunct to the Pennsalt Plant at Calvert, Kentucky. The Division recommends the venture, the CAR Committee recommends that it be dropped. Mr. Osborne wanted to hear the entire story before reaching a decision.

Mr. Logan presented the case for the Chemicals Division.

Market.

Right after World War II, OMCC gave to the paper industry royalty-free licensing of the Mathieson Chlorine Dioxide Generator for pulp bleaching. Solvay also gave away their generator for the same purpose. There are now 23 Mathieson Generators and 12 Solvay Generators installed which at capacity would use 97,000 Tons/Year of sodium chlorate. It is estimated that actual use will reach 65,000 Tons in 1962. These generators constitute the major

market for chlorate though roughly 15,000 Tons are used for Ammonium Perchlorate for Defense purposes and a small amount as a weed killer.

John Logan believes that the sale of chlorate will give help in selling other chemicals to the paper industry. Paper industry now accounts for 9.2% of Industrial Chemical Sales.

[fol. 1309] Competition

Hooker Chemical has capacity for 36,000 Tons; ⅓ at Niagara, ⅔ at Columbus, Miss.

American Potash has 57,000 Ton capacity; 34,000 at Henderson, Nevada and 23,000 at Aberdeen, Miss.

Pennsalt has 23,000 Tons at Portland, Oregon.

Columbia-Southern produces in Canada but not in the United States at present. Mr. Block believes that Columbia-Southern will go into the business in the United States if we don't.

Solvay has been selling American Potash material but has given up the franchise. It has been offered to OMCC.

Hooker has offered the major users five year fixed price contracts, probably blocking any price increase for five years. These contracts allow no escalation upward but do permit downward revision.

A little chlorate is imported. More is available and will maintain a ceiling on prices.

Technical

Surveys of American and European industry have indicated that Pennsalt has the best process. There is no question concerning technical know-how and competence.

The plant must be an adjunct of another plant and must be in the TVA area to have competitive costs.

Capital Cost and Production Cost

Joe Wood is of the opinion that Pennsalt is ultra-conservative and that cost figures are too high, both in capital and operating cost.

[fol. 1310] CAR Committee

Mr. Reed reported for the CAR Committee. The Committee believes that the return on investment is too low. About 30% of Chemicals Division Projects are not profit generating; at present, the Division returns 8.4% on gross investment and in order to maintain it, the profit generating investments must reach at least 12%. This project will reduce the return of the Division rather than improve it. Since they can see no compelling reason to enter the business, the Committee recommends rejection of such a large investment for so small a return. The return will lie someplace between 7.1% and 9.3% on a 7.2 to 8.2 million dollar investment.

Mr. Osborne noted that the 9.3% claimed was before inter-corporation dividend tax and before corporate overhead and financing costs. The dividend tax alone would reduce the return to 8.48%.

Pennsalt Relationship

Mr. Osborne explored the effect of our relationship with Pennsalt if we do not proceed. It was concluded that the only serious obligations were (1) that Pennsalt be notified immediately (2) that we pay 50% of costs to date ($50,000 to $100,000) and (3) a moral obligation not to enter the business on our own for a substantial period of time.

Summary

Mr. Osborne summarized the facts as follows:

(1) An investment of $7,200,000 to $8,200,000
(2) A return of 7.1% to 9.3% before dividend tax, financing costs and corporate overhead
(3) Chemicals Division wants to extend their line of paper industry chemicals
(4) Price is frozen for five years with a ceiling after that imposed by imports and competing chemicals
(5) The Penn-Olin joint venture may open the door to a Department of Justice Investigation.

[fol. 1311] Decision

After recess and further investigation, Mr. Osborne announced his decision not to proceed for the following reasons:

(1) Department of Justice complaint is serious. While this is not governing, he would prefer not to battle on a project of such a low return.

(2) The return on investment is too low. The product is not important enough to our structure to justify proceeding with such a low return investment.

(3) The price situation is deteriorating. Fixed prices and inflating costs will squeeze return even lower for five years; after which time will be required to correct the situation. The return will stay low for 7 or 8 years.

(4) While our cash position is good, we can't have everything. The corporate profit on investment must increase and this project won't help. The maximum estimate of 9.3% would only be 8.5% after dividend tax.

(5) The project provides little opportunity for future expansion.

R. L. Dietrich, Secretary, CAR Committee

[fol. 1312] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 247

Olin Mathieson Chemical Corporation

August 2, 1960.

To: Mr. E. Block at Baltimore
From: J. L. Wood at Baltimore
Subject: Chlorate Plant Study
Using Vickers-Krebs Bid

Copy to
Mr. J. O. Logan
Mr. J. Statz

Recd: Aug. 22—

1. Cap. 26,500 tons.
2. Spare cap. outside of cell room
3. New est. of Cap. $6,454,000
   a. $100,000 no packaging
   b. $200,000 fees etc.

The technical team at Portland came up with these conclusions:

1. V-K cell installation would cost approximately $5,500,000.
2. Pennsalt cell installation using 8,000 ampere cells would cost $5,800,000.
3. There was no significant difference in operating consumptions or costs in either installation.
4. We should go with a thoroughly proven cell which is fully familiar to the actual operators.
5. A further OMCC conclusion was that Pennsalt pride in their own cell was worth our share of $300,000 in a joint venture.
6. Substitution of titanium heat exchangers for Karbate removes one of the big objection to the Vickers-Krebs cell system; Vickers-Krebs estimated approximately $55,000 additional cost on two units.

Following your instructions, J. Statz and I prepared the following attached evaluation comparison:

177A Original Penn-Olin economic evaluation.

177A Revised—Original Penn-Olin basis using Vickers-Krebs plant costs and corresponding depreciation change.

177B Revised—Uses Vickers-Krebs plant costs with revisions in operating costs and 100% bulk sales.

1. Return.
2. Ceiling price by Hooker—$161,000 inc. in op. cost. in 5 years.
3. Anti Trust.
4. Gen. Ec. Climate increase of 8% sales would offset above forms revised for defense dept. Barnes, Deckert, Price, Meyers, Rowe.

[fol. 1313] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 250

August 19, 1960.

Mr. Walter F. O'Connell, Vice President
Olin Mathieson Chemical Corporation
460 Park Avenue
New York 22, New York

Dear Walter:

Re: Penn-Olin Chemical Company

You will find enclosed two re-stated copies of the Summary of Sales and Earnings and Estimated Cash Generation. These reflect the revised capital cost estimates, earnings estimates, and increased equity investment and reduced loan requirements. They also reflect Plant Management and Selling and Administrative fees.

This morning I discussed the three methods of approach which we reviewed yesterday, and it is our feeling that we would much prefer the approach contained in these state-

ments for two principal reasons, namely: a significant equity investment and a desire not to guarantee the loan in any manner.

You will note that we believe the total bank loan must amount to $4½ million rather than the $4 million discussed yesterday. It is my hope that this increase will still permit the loan to stand on its own feet and not require any form of guarantee.

Should you have any questions, kindly call me.

Sincerely yours, W. Cooper Willits, Treasurer.

wcw/r
encls.

[fol. 1314] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 251

Pennsalt Chemicals

Date: August 22, 1960.

Subject: Penn-Olin—Revised Estimates

To: Mr. J. McWhirter
From: A. S. Woodard
Copies to L9—N22—W1

As requested through Mr. Wood, we have met with Messrs. Harlowe Reed, Richardson, and Wood on the afternoon of Friday, August 19th, to discuss the revised Penn-Olin estimates. Mr. Reed is Chairman of the Capital Appropriations Committee for Olin Mathieson.

Mr. Reed stated that the Penn-Olin project was rejected by Olin Mathieson because it had an inadequate return on investment. Olin Mathieson has a minimum standard of 10% net on gross investment. In view of the revised estimates, he wished to establish through discussion with Messrs. Wood and the writer the adequacy of the revised capital estimates as well as the operating costs used in the economic projection.

It was pointed out to Mr. Reed that we had been advised

by Olin Mathieson that the preliminary estimates and evaluation had been considered satisfactory by Olin Mathieson in view of the long term benefits of the project to both parties, and Pennsalt had reconciled its concern with the low return and agreed to proceed. With this background, the estimate presented to the Penn-Olin Board on July 12th had been prepared to establish the validity of the preliminary estimate rather than to determine the most favorable capital costs and economics that might pertain. It was pointed out that had our objective been the latter, considerably more time would have been required for engineering prior to estimating and we could not have agreed to the July 12th date for submission of estimates.

We reviewed our revision of the estimate of the job as presented in our letter to you dated August 16, 1960. It was noted that this did not constitute a re-estimate of the job since we did not feel that the time and expense was warranted. Further, the status of the engineering and acquisition does not presently warrant such a re-estimate. We discussed the elimination of the packaging facilities [fol. 1315] as well as warehousing of packaged goods. Mr. Wood repeated to Mr. Reed that Sales (Olin Mathieson) was in accord with the recommended elimination of these facilities. This amounts to $100,000 reduction in capital required. The additional $200,000 reduction results from our decision to contract construction locally with attendant savings in construction fees, field office costs, and construction tools. Mr. Wood had suggested substitution of evaporative crystallizer for the refrigerated crystallizer used by Pennsalt at Portland, but it was agreed to drop this from the present estimates pending final review by Pennsalt. (Decision on this processing item is expected to be made by August 26th). Mr. Reed was concerned with the low "contingency" allowance, but appeared to feel it was offset by the favorable proposals for rectifiers as well as acceptable bids on the electrolytic cells.

Finally, after being reassured that we were not proposing to "cheapen" the plant to make the savings in capital cost, Mr. Reed asked if we were willing to say that the revised estimate was the last word on cost and that we were prepared to let the job stand or fall on these numbers. It was pointed out to Mr. Reed that we had no authority to make

such a statement and, secondly, as mentioned above, the estimating to date had been only for the purpose of confirming the realism of the preliminary analysis and that completion of the engineering would be required before a more definitive estimate would be possible.

After agreement that the numbers used by both companies would be those included in our written memorandum of August 16th and Mr. Niederriter's tabulation dated August 16th, we inspected the preliminary model of the process which is in Central Engineering's office. Mr. Reed seemed to be satisfied with the facts as presented to him. (He requested and received a copy of United Engineers and Constructors' report, "Sodium Chlorate Plant—Process Design and Cost Estimate").

A. S. Woodard.

asw:jh

[fol. 1316] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 252

[Extract]

Financial and Operating Policy Committee
Minutes of Meeting
August 24, 1960

Present: Mr. J. M. Olin, Chairman, Mr. J. W. Hanes, Mr. T. S. Nichols, Mr. S. de J. Osborne.

* * * * * * *

2. Capital Appropriation Requests.

* * * * * * * *

The Committee approved the investment of $1,500,000 in the equity of Penn Olin Chemical Company, a joint enterprise with Pennsalt Chemicals Corporation, for the construction of a Sodium Chlorate Plant, costing $6,454,000, at Calvert City, Kentucky.

* * * * * * * *

[p. 5]

Respectfully submitted, S. de J. Osborne.

SdeJO:JF

[fol. 1317]

IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 253

Olin Mathieson Chemical Corporation

CAPITAL APPROPRIATION REQUEST For Investment in Joint Venture

OM-6310 REV. 8-58 This replaces all prior CAR's of this number.

NOTE: See Standard Procedure No. 7 for detailed instructions and required signatures.

DATE Aug. 29, 1960

TYPE	IF FORECASTED	APPROPRIATION NO.
☐ FORECASTED ☒ NON-FORECASTED	FORECAST NO. ____ FORECAST AMOUNT ____	172-001-377C
TITLE: PENN-OLIN CHEMICAL COMPANY - INVESTMENT		AMOUNT ~~$3,714,500~~ $3,227,000
OPERATING DIVISION OR ADMINISTRATIVE DEPARTMENT: CHEMICALS DIVISION - INDUSTRIAL		ORIGINATED BY: J. L. WOOD
PLANT LOCATION: Calvert City, Kentucky	DEPARTMENT NAME & NUMBER	BUILDING NAME & NUMBER / FLOOR

DETAILS OF PROPOSAL (Including expected results and accomplishments) (Attach extra sheets on plain paper if necessary)

To request the necessary funds to cover Olin Mathieson's 50% interest in new facilities to be constructed by Penn-Olin under their appropriation request covering a plant to produce 26,500 tons per year of sodium chlorate. The supporting data on which funds will be requested by Penn-Olin is attached. Arrangement for providing capital are to be worked out by Pennsalt Chemicals Corporation and Olin Mathieson Chemical Corporation.

Capital Requirements:

Penn-Olin's Fixed Capital at 50%	$3,227,000**
Working Capital at 50%	337,500
TOTAL	$3,564,500
***From start of construction	8.6 years
In full production	6.6 years

PENN-OLIN D-1/8

These facilities are to be constructed at Calvert City, Kentucky adjacent to the present Pennsalt operations on land purchased by Penn-Olin from Pennsalt. The plant is located here to take advantage of low cost TVA power and existing facilities from which Pennsalt will provide the necessary services for plant operation.

AMOUNT TO BE CAPITALIZED	$3,227,000	SIGNATURES	DATE
AMOUNT TO BE EXPENSED	$	Engineering Estimate J. L. Wood	Aug. 29/60
TOTAL			

CHEMICALS DIVISION - INDUSTRIAL		J. L. WOOD	
PLANT LOCATION	DEPARTMENT NAME & NUMBER	BUILDING NAME & NUMBER	FLOOR
Calvert City, Kentucky			

DETAILS OF PROPOSAL (Including expected results and accomplishments) (Attach extra sheets on plain paper if necessary)

To request the necessary funds to cover Olin Mathieson's 50% interest in new facilities to be constructed by Penn-Olin under their appropriation request covering a plant to produce 26,500 tons per year of sodium chlorate. The supporting data on which funds will be requested by Penn-Olin is attached. Arrangement for providing capital are to be worked out by Pennsalt Chemicals Corporation and Olin Mathieson Chemical Corporation.

Capital Requirements:

Penn-Olin's Fixed Capital at 50%	$3,227,000**
Working Capital at 50%	337,500
TOTAL	$3,564,500

PENN-OLIN D-118

***From start of construction	8.6 years
In full production	6.6 years

These facilities are to be constructed at Calvert City, Kentucky adjacent to the present Pennsalt operations on land purchased by Penn-Olin from Pennsalt. The plant is located here to take advantage of low cost TVA power and existing facilities from which Pennsalt will provide the necessary services for plant operation.

			SIGNATURES	DATE
AMOUNT TO BE CAPITALIZED	$ 3,227,000		Engineering Estimate J. L. Wood	Aug. 29/60
AMOUNT TO BE EXPENSED	$		C. L. Williamson	8/25/60
TOTAL	$ 3,227,000		J. O. Logan	9/6/60
LOSS ON RETIREMENTS (Attach form 6514)	$		Operating Division Head E. Bluck	9/8/60
SCHEDULE OF PROPOSED EXPENDITURES	THIS YEAR $ 850,000	ESTIMATED COMPLETION DATE (Month & Year)	Vice President - Marketing	
	NEXT YEAR $ 2,377,000	July, 1961	Vice President for Manufacturing Services	
	FOLLOWING YEARS $		President	
PERCENT RETURN ON GROSS INVESTMENT (Per line 22 of Economic Evaluation attached)		10.1%		
CASH RECOVERY PERIOD (Per line 25 of Economic Evaluation attached)		*** YEARS	Board of Directors Executive or Financial & Operating Policy Committee	

SIGNATURES	DIVISION FINANCIAL OFFICER	DATE	CORPORATE V.P. & COMPTROLLER	DATE
	[signature]	9/7/60		

Logged 9/13/60 UDP
Ten Feet $3,714,500
TT OSBORNE 7

COPY FOR: DIVISION FINANCIAL OFFICER

843

[fol. 1318] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 254

Penn-Olin Chemical Company
Capital Appropriation Request
Sodium Chlorate Plant
Calvert City, Kentucky

Revised: August 29, 1960

[fol. 1319] Introduction and Summary

The production of sodium chlorate is an essential and integral part of Olin Mathieson's chemical business.

a. The product is made by an electrolytic process using salt as the main raw material. This is intimately related to the extensive caustic-chlorine operations of Olin Mathieson. The same general technical knowledge is required and is transferable.
b. The principal and growing market for sodium chlorate is for bleaching of wood pulp via chlorine dioxide generation. Olin Mathieson has operated a commercial chlorine dioxide generator longer than anyone else in the world. This experience has resulted in the installation of over twenty chlorine dioxide generators in the major paper mills of the country. Olin Mathieson is well established as a supplier of chemicals to this market and must get a return on the effort put into chlorine dioxide generation installations.
c. The proposed operation also is the first step in the future production of perchlorates should Olin Mathieson decide to go into the perchlorate business via either its Chemical Division, or its Energy Division.

A joint venture with Pennsalt Chemicals Corporation to produce 26,500 tons per years is proposed on the basis of data as follows herein.

[fol. 1320] Sodium Chlorate

Market Analysis

1. Market History of Product

The total non-captive market for sodium chlorate in the U. S. amounted to approximately 70,000 tons in 1959. Published figures for previous years are unavailable but the magnitude of growth is directly related to the increase in rate of production, from 22,000 tons in 1950 to 87,000 tons in 1959.

Published price for sodium chlorate has been stable since 1956 at nine cents per pound, carload of drums. No dis-

counts, concessions or premiums are allowed. Transportation charges are for the account of the buyer.

The foregoing price is factual, no discounts are allowed to volume purchasers.

There have been only three domestic producers of sodium chlorate during the last five years. Two of these three producers have increased their productive capacity during this five-year period, largely through provision of plants to serve the pulp and paper industry.

2. New Market Objective

Demand for sodium chlorate is expected to continue to increase, particularly in the pulp and paper industry. The chlorine dioxide production process used by the majority of the pulp mills in the southeast was developed by Olin Mathieson at its Niagara Falls laboratory. The engineering and operating know-how so developed has been made available to the mills at no cost. Our technical service men have provided valuable assistance to the paper mills in solving start-up and operational problems. They are well-known and respected in the industry. OMCC should take advantage of its extensive experience with the chlorine dioxide process and with the pulp and paper industry to enter the sodium chlorate market.

3. Five Year Sales Forecast

It is visualized that the total non-captive market sales during the next five years, and OMCC's percentage of the total available market during this period will be as follows:

[fol. 1321]

	Total Non-Captive Market	OMCC Percentage of Market
1960	77,000	—
1961	84,000	—
1962	91,000	22%
1963	98,000	27%
1964	105,000	25%

In view of the stability of the market over the past few years we anticipate no major price changes during the next five years.

Because of the relatively favorable balance between production and demand, together with projections of in-

creased demand, we visualize that the market will be stable and that competitors will enter the market only to supply increasing requirements.

For a competitor to enter this business studies show that the economic size for a new plant would be in the 20 to 25 thousand annual ton size. Capital outlay for a plant of this size range will require $7,500,000 when attached to an existing plant with basic facilities. At a new site or "green grass" location, a minimum of $1,000,000 additional would be required. It would require a competitor a minimum of 18 to 24 months to build up a sales force for marketing 25,000 tons per year of chlorate assuming an existing basic organization for heavy chemicals sales. A Penn-Olin technical team survey showed the only reliable technical know-how for sale to be available in Europe. Electrolytic cell know-how can be purchased from several reliable sources. Information on crystal recovery is less extensive and suitability to U. S. conditions would require a year of intensive pilot work to develop. The basic raw material is solid salt or brine and involves no supply problem in conceivable industrial areas. However, power requirements are so large, over 6,300 KWH per ton of chlorate, that any plant must locate in a low cost power area such as TVA. The major problem facing any competitor would be entry into the portion of the chlorate market where the present growth is taking place. The growth is in the chlorine dioxide bleaching field which is dominated by the Olin Mathieson patent position and to a minor extent by the Solvay position.

Sodium chlorate to be marketed by OMCC will have no element of exclusiveness with respect to quality and geographic area of availability. As previously discussed, OMCC has a distinct marketing advantage by reason of its long association with the pulp and paper industry in providing know-how and technical assistance in connection with chlorine dioxide generators.

It is not anticipated that the sale of sodium chlorate will have any appreciable effect on the sale of other OMCC products.

[fol. 1322] 4. OMCC Marketing Operation

Sales of sodium chlorate will be made directly to consumers in bulk carload lots to the pulp and paper industry, which is the primary market for sodium chlorate.

Sales are non-seasonable and no excessive inventory accumulations or warehousing operations will be required.

Sodium chlorate will be marketed through our existing field sales organization with the assistance of our present technical service personnel. Some increases in personnel, both for sales and technical service may be necessary.

[fol. 1323] Scope

The plant as proposed has a capacity to make 26,500 tons per year of sodium chlorate by the electrochemical oxidation of sodium chloride. It is to be located in the general works area of Pennsalt Chemicals Corporation at Calvert City, Kentucky.

The process design is based on information provided by Pennsalt. Although some engineering modifications have been made, the process is very similar to the one Pennsalt has in operation at Portland, Oregon.

The plant contains a brine purification section, 636 electrolytic cells each drawing 8,500 amperes, a double effect vacuum evaporator, a crystallization section with two stages of cooling and a rotary dryer. All shipments will be in bulk and will be made in 50 to 70 ton hopper cars. Storage for 1,500 tons of sodium chlorate is provided.

Electric power is obtained from a TVA line at 13,200 volts approximately 3,000 feet away. Steam, chlorine and caustic are received from the main Pennsalt works. The plant has its own 15,000 gallons per minute cooling tower installation.

The capital cost of this sodium chlorate plant, including the costs of tying in to the TVA line and the Pennsalt steam mains, is estimated to be $6,454,000. This includes a contingency of $310,000.

The annual materials and utilities requirements include the following:

Materials	Units Per Year
Sodium Chloride	31,800,000 lbs.
Chlorine	1,060,000 lbs.
Sodium Hydroxide	770,000 lbs.
Barium Chloride	475,000 lbs.
Sodium Carbonate	290,000 lbs.
Graphite Anodes	530,000 lbs.
Utilities	
Steam (150 psig)	175,000,000 lbs.
River Water (90°F)	850,000,000 gals.
Electricity (13,200 volts)	185,000,000 kwh

[fol. 1324] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 255

Mon 8/29/60 p6

Plaintiff's Osborne 6 for Identification

Milestones

October 4, 1961

J. Birkhahn, CSR

Olin Mathieson to Build $13 Million Chemical Plant in Tennessee

By a Wall Street Journal Staff Reporter

New York—Olin Mathieson Chemical Corp. announced over the weekend it will build a $13 million plant at Charleston, Tenn., to produce chlorine and caustic soda.

To be located on a 600 acre site on the Hiwassee River, the new plant will have a capacity of 180 tons a day and is expected to be in operation by the end of 1961.

The company said the Charleston unit will increase Olin Mathieson's ability to supply Southern markets. It also will

supply chlorine and caustic soda to the chemical company's own operations. Olin Mathieson already has chlorine and caustic soda facilities at Niagara Falls, N.Y., McIntosh, Ala., and Saltville, Va.

Stanley de J. Osborne, president of the company, said Olin Mathieson anticipates that other industries supplying Southern producers and using Mathieson raw materials will move into the Charleston area.

He noted that the expansion is in addition to the $30 million chemical expansion program announced a year ago. The Charleston unit will be financed from company funds. It will get its power from the TVA.

[fol. 1325] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 256

Pennsalt Chemicals Corporation
P. O. Box 1297, Tacoma 1, Washington

August 30, 1960

Olin Mathieson Chemical Corporation
Mathieson Building
Baltimore 3, Maryland
Attention: Mr. Marriott

Re: Order BA 55841

Gentlemen:

Later today our Portland office will forward our invoice covering the above referenced order for a total of 500—100 pound drums of Sodium Chlorate for shipment to your plant at Phoenix, Arizona. We have noted on your purchase order that you have indicated a 5% commission is applicable as this material is for resale. Last year Mr. Drake Watson, our General Manager, clarified this situation with your company, and we are under the impression that this material is not resold as Sodium Chlorate but is used in the manufacture of defoliants at your Phoenix plant. As a result, we do not consider this item as a resale item and

the 5% commission seemingly does not apply. Consequently, our invoice has been prepared accordingly.

Change order issued to cancel 5% Commission.

9/1/60

OK per

9/6

Very truly yours, Pennsalt Chemicals Corporation, A. F. Pilling, Administrative Assistant, Agricultural Chemicals Division.

AFP:dh

[fol. 1326] In United States District Court

Plaintiff's Exhibit 257

September 1, 1960.

Penn-Olin Chemical Company

$1,500,000 is requested for investment in the Penn-Olin Chemical Company. This investment will represent a 50% stock ownership (with an equal amount being contributed by the Olin Mathieson Chemical Corporation), and the balance of the required money (i.e., approximately $4.5 million) will be raised by outside borrowed capital. These funds will be used by Penn-Olin for the construction of a 26,500-ton sodium chlorate plant adjacent to our Calvert City operation.

Investment, Earnings & Return on Investment

	10-Year Average	
	Penn-Olin	Pennsalt
Total Investment	$ 7,129,000	$ 1,500,000
Project Operating Earnings (i.e., before interest, excess depreciation and taxes)	1,352,000	—
Income to Pennsalt (Management Fee annually and Dividends after borrowed capital paid back), before tax basis	—	460,000
Return on Investment (before tax basis)	19%	31%
Earnings per share after taxes	—	5.7

In addition to the return on Pennsalt's investment noted above (which will come from management fee and dividends), it is conservatively estimated that Pennsalt will benefit to the extent of over $100,000 per year in reduced

overhead and other costs in its Calvert City plant operations, thus making the actual total return on Pennsalt's investment higher than 31%.

Pennsalt has produced sodium and potassium chlorate for many years at Portland, Oregon, and the new Penn-Olin plant will utilize Pennsalt technology. Olin Mathieson, in turn, has a strong market position in chlorates since they have developed an efficient patented process for the generation of chlorine dioxide from sodium chlorate, which process is in use in pulp and paper mills throughout the country, and especially the Southeast.

[fol. 1327] In addition to the increasing demand from the pulp and paper industry, sodium chlorate is also the major raw material used in the production of ammonium perchlorate (a solid rocket fuel oxidizer) and in the manufacture of defoliants and weed killers.

* * * * * * *

Assuming approval of this project by both the Pennsalt and Olin Mathieson Boards, authorization is requested to proceed with the sale by Pennsalt of the necessary land to Penn-Olin (approximately 13.5 acres at current appraised value). Negotiations will also be initiated in connection with Penn-Olin borrowing the $4.5 million mentioned above.

[fol. 1328] In United States District Court

Plaintiff's Exhibit 259

Pennsalt Chemicals

Subject: Penn-Olin Chemical Company
Date: September 6, 1960
To: Mr. William P. Drake
From: W. Cooper Willits

In addition to the revised memorandum which has been sent to the directors, you will find attached a recast Summary of (estimated) Sales and Earnings and Estimated Cash Generation—1961-1971. Also attached is a memo from Al Clem concerning the sales outlook.

As you know, since the Board approved investment of

$1,000,000 in the project at the August meeting, revision of plans has been made in several important areas; namely:

1. Total investment has been reduced to $7,129,000 from $7,429,000. Principal factors enabling this reduction are receipt of substantially lower bids than originally estimated for electrical equipment; restriction of project to bulk sales, thus eliminating capital costs for packaging equipment; and more finalized engineering, which pinpoints other estimated costs to a higher degree.
2. Increased capacity of plant to 26,500 tons from 25,000 tons per annum and, accordingly, increased annual sales to $4,190,000 from $4,007,420.
3. Increased project operating earnings to $1,352,000 from $1,135,000, which increases the return on the total project to 19% from 15%.
4. Increased investment to $1,500,000 from $1,000,000, which will enable the project to pay out within seven years and thus permit commercial banks to handle all the financing, which in turn eliminates the need for longer term insurance loans. It is also believed that the higher equity ($3,000,000) and lower need for borrowed funds ($4,500,000) will not necessitate any type of guarantee, either director or indirect, on the part of the parents. I wouldn't particularly dwell on this point, in that the Board recognized at the last meeting that, while no formal guarantee might exist, there certainly would exist a moral obligation insofar as protecting the credit position of Pennsalt.

[fol. 1329] 5. In spite of the increased investment, the return on this investment has been increased to 31% from 25%.

6. In place of dividend payments, justifiable plant management fee and selling and administrative fee for Pennsalt and Olin Mathieson respectively, starting in the amount of $180,000 in 1962 and increasing to $300,000 in 1963 and succeeding years, is provided. These fees will yield a return on $1,500,000 equity investment for each parent of 20% before taxes for 1963 and subsequent years; the $180,000 for 1962 provides a return of 12%.

This method eliminates the 15% tax on dividends during the period of debt payment (through 1967). Subsequent substantial earnings in excess of these fees will probably have to be paid out in the form of dividends. However, if Olin's sales projections materialize, these earnings would be retained in the company to expand the plant.

A complete appropriation request is being prepared for approval at the next Penn-Olin Chemical Company Board meeting, which will be held within a few weeks. It is impossible to have this revised request available for tomorrow's meeting, in that all of the figures are being recast to reflect the many changes mentioned previously.

W.C.W.

wcw/r
encls.

[fol. 1330] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 263

September 14, 1960.

Mr. C. C. Hightower, Baltimore
B. H. Nicolaisen, Niagara Falls
Development Department Budget—1961

Three copies of the proposed 1961 Capital and Expense Budget are enclosed. Project detail sheets are included to allow a thorough analysis of the budget.

The budget has been carefully and realistically developed and it is hoped that it will be generally self-explanatory. Some change in the ratio of Capital and Expense spending may be noted from the original rough estimate. This is due to the fact that most pilot plants will not be capitalized in total unless they are to be directly converted to production usage. Some items in those pilot plants will require capitalization, however, because of their expense and durability. The final budget has taken those factors into detailed consideration.

Under separate cover, we are forwarding brochures covering the proposed facility shown in the Capital Budget.

L. P. Scholl.

LPS:HM
Encl.

[fol. 1331] Development Research Budget

Project Costs

Project Costs	Total Costs with Overhead Applied 1961 Budget	1960 Estimate	
1. New Product Development			
2. Product Cost Reduction			
New Chlorite from Amalgam	132,696	125,438	
4201 Sodium Chlorate	239,051	230,944	30,500
3. Equipment Development			
4. Factory Assistance			
	875,620	1,086,105	333,475

[fol. 1332] Chemicals Division

Development Department
Capital Expenditures Forecast—1961

Class B—Expansion of Existing Equipment

Description and Purpose		Cost
1. Chlorate Pilot Plant		12,000
Chlorate Filter	3,500	
Tankage and Pumps	5,500	
Instrumentation	3,000	
3. Chlorite from Amalgam Pilot Plant		7,200
Instrumentation, Pumps and Tankage		
Total Class B Equipment		$ 892,885

[fol. 1333]

Budget for 1961

Expense of Department Title Chlorate Acct. No. 4201

Detail Code	Expense Classification	Annual Amount	Employee	Salaries and Wages
100	Salaries	46,580	1 Chemist	
150	Telephone and Telegraph	260	1 Technician	
170	Supplies and Utilities	7,360	¼—3 foremen	
180	Travel and Entertainment	2,180	3 Operators	
273	Outside Services	435	1 Engineer	
290	Work Orders	132,780	¼ Secretary	
699	Miscellaneous	435	2 Clerks—⅓	
			½ Draftsman	
	Total	190,030		
	Overhead	40,914		
	Total With Overhead	230,944		

This project was disallowed by Block, although he left money in budget for negotiation purposes. No active program visualized at NH or NF.

[fol. 1334] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 265

Buyer's Contract No. OM-BA-818

Contract

American Potash & Chemical Corporation
Ninety-Nine Park Avenue, New York 16, N. Y.

Contract No.

New York, September 20, 1960

Seller: American Potash & Chemical Corporation.
Buyer: Olin Mathieson Chemical Corporation, Baltimore, Maryland.

The Seller agrees to sell and the Buyer agrees to purchase the following designated material during the period from January 1, 1961 to December 31, 1961 subject to the terms and conditions hereinafter stated:

Material: Sodium Chlorate Crystals (99.5% $NaClO_2$ minimum, .15% NaCl maximum, .2% H_2O maximum).

Quality: Technical Grade.

Quantity: Not less than 5,000 tons, nor more than 14,000 tons, unless otherwise mutually agreed.

Price: $.0809 per pound in Buyer's Cars, F.O.B. Hamilton, Mississippi or F.O.B. Henderson, Nevada, freight equalized with the lowest rail freight rate in effect at time of shipment (in either tank cars or bulk covered hopper cars) from the nearest competitive producing point in the United States to destination, less a discount of 5% on $.0809.

Terms Of Payment: To customers of established credit, terms are net cash against invoice, payable at Seller's office at 3000 West Sixth Street, Los Angeles 54, California. Invoices will be submitted monthly.

Deliveries: Shipments shall be made in not less than minimum car lots, as permitted by applicable railroad tariffs in effect at time of shipment, to destinations designated by Buyer. Not less than 25% of the total tonnage shipped each month under this contract will be made avail-[fol. 1335] able for shipment from Hamilton, Mississippi, the balance from Henderson, Nevada.

The terms and conditions set forth on the attachment marked "Appendix A" are hereby incorporated in and made a part of this contract.

Accepted:

J. C. Logan, Olin Mathieson Chemical Corporation.

American Potash & Chemical Corporation. By: W. J. O'Brien, Manager, Industrial Chemical Sales. Approved By: A. J. Dirksen.

[fol. 1336] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 267

AXXXXXXX-076 ICEX EXEC 18 9-22-60 225

Mr. Osborne Has Approved CAR no. 172-001-377C for $3,227,000 and Authorizes Your Proceeding with the Work While Awaiting FOPC Approval at the Next FOPC Meeting.

Janet Lee

9/23 copy for C. V. Mayne, R. C. Phillips, J. O. Logan and C. L. Williamson.

Recorded E. B., September 21, 1960.

[fol. 1337] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 268

Olin Mathieson Chemical Corporation

[Extracted]

Date: September 23, 1960.

To: Those Present at 460 Park Ave.
From: R. L. Dietrich at 460 Park Ave.
Subject: CAR Committee Meeting, September 20, 1960
Copy To: N. H. Collisson

The CAR Committee met at 10:00 a.m. on September 20, 1960. Present were:

R. Hopkinson
W. F. Otterstrom
H. J. Reed
W. F. O'Connell
A. T. Safford, Jr.
R. L. Dietrich

1) *CAR 172-001-377C;* $3,227,000; Chemicals Division—Calvert City, Ky.; Penn-Olin Chemical Company—Investment

Mr. H. J. Reed stated that the present CAR has been revised in accordance with the information developed by the Chemicals Division, Pennsalt and himself in Philadelphia and reported separately in his letter of August 22, 1960. It has been checked and the only differences in this and the preceding CAR are those made necessary by the revision in production capacity, plant cost and operating cost. This is the basis upon which the FOPC approved the project.

Mr. W. F. O'Connell stated that the market analysis provided was inadequate for the bankers with whom he is arranging to finance the project. As soon as he has a more satisfactory market survey, he can borrow the money for the project. It is anticipated that Olin Mathieson will finance half of its contribution and will borrow half without a commitment by the parent company. Pennsalt will finance

its share independently. Mr. O'Connell has been and will continue to press Mr. J. O. Logan for the market survey required. The Committee recommended approval.

. . . . . .

(p. 4)

R. L. Dietrich
RLD:vw

[fol. 1338] In United States District Court

Plaintiff's Exhibit 270

Pennsalt Chemicals Established 1850

Subject: Sodium Chlorate—Olin Mathieson Chemical—Intermountain Territory
Date: October 3, 1960
To: Mr. L. M. Shanaman
From: J. M. McCullough
Copies To: M32 L14

Week before last Olin Mathieson had three representatives in the Intermountain Territory making a complete survey of the uranium trade.

They also called on Carl Dewey and tried to set him up as a jobber. Carl Dewey's reply was that he was representing enough people now and that he was not interested. Presuming that he continues on this track, it is logical to believe that Olin Mathieson will try to set up a representative in that area through other jobbers, possibly in the Denver-Salt Lake area.

J.

JMM:mc

[fol. 1339] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 271

Penn-Olin Chemical Company
100 West 10th Street
Wilmington 99, Del.

October 7, 1960.

James McWhirter, President,
W. Cooper Willits, Treasurer.
Mr. John O. Logan,
Vice President
Penn-Olin Chemical Company
Mathieson Building
Baltimore 3, Maryland

Dear John:

We are forwarding herewith four copies of proposed appropriation request ID-001-PO covering facilities for the sodium chlorate plant being built at Calvert.

You will note that the appropriation request itself ignores after-tax earnings, management fees, etc. It was felt that the formal request should show a return of 19.5%, reflecting the basis on which decision was reached by the respective parent companies to undertake this project. A supplementary statement is attached which gives a more complete picture of the actual conditions contemplated, including corporate earnings, cash generation, etc.

It would be appreciated if you would review the form we have used and advise of your reaction.

Distributed to Board.

Sincerely, Mac.

JMcWhirter
ram
Attachments

[fol. 1340]

PENN-OLIN CHEMICAL COMPANY

APPROPRIATION REQUEST

TITLE	PROJECT CLASS	APPROPRIATION REQUEST NO.
SODIUM CHLORATE PLANT		ID-001-PO
PURPOSE (b) Production and Sale of 26,500 tons annually of Bulk Sodium Chlorate		AMOUNT REQUESTED (a) $7,247,000

COST AND RETURN (c)

CAPITAL INVESTMENT POLICY NO.

1. Fixed Project Capital	$ 6,447,000
2. Working Capital	$ 810,000
3. New Capital for Off-Site Facilities	$
4. Share of Existing Investment in Off-Site or Leased Facilities and Land	$
5. Total Investment	$ 7,257,000
6. Average Annual Sales	$ 4,078,000
7. Average Annual Profit Before Taxes	$ 1,414,000
8. Average Return Before Taxes on Total Investment over 10 Year(s)	19.5 % Per Year
9. Average Return on Pennsylvania Investment ~~Basis~~	% Per Year
10. Cash Pay-Out Period Straight Line Deprec. Basis - ~~Fixed Capital Only~~	6.4 Years
11. Average Earnings Per Share	$ – Per Share

CASH GENERATED (d)

ANNUAL SCHEDULE

(000's)

1st	2nd	3rd	4th	5th	6th	7th
$ 763	1,077	1,077	1,077	1,077	1,077	1,077

CAPITAL EXPENDITURES

QUARTERLY SCHEDULE FROM DATE OF APPROVAL

4th 1960 1st 1961 2nd 1961 3rd 1961 4th 1961

(000's)

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 547	1,000	2,600	2,000	300			

COMPLETION DATE

NO. OF MONTHS REQUIRED FROM DATE OF APPROVAL

BEFORE TRIAL OPERATION BEGINS	BEFORE COMMERCIAL OPERATION BEGINS

CAPITAL INVESTMENT POLICY NO.

(c) COST AND RETURN

1. Fixed Project Capital	$ 6,447,000
2. Working Capital	$ 810,000
3. New Capital for Off-Site Facilities	$
4. Share of Existing Investment in Off-Site or Leased Facilities and Land	$
5. Total Investment	$ 7,257,000
6. Average Annual Sales	$ 4,078,000
7. Average Annual Profit Before Taxes	$ 1,414,000
8. Average Return Before Taxes on Total Investment over 10 Year(s)	19.5 % Per Year
9. Average Return on Personal Investment	% Per Year
10. Cash Pay-Out Period Straight Line Deprec. Basis - Fixed Capital Only	6.4 Years
11. Average Earnings Per Share	$ - Per Share

(d) CASH GENERATION

ANNUAL SCHEDULE

($000's)

1st	2nd	3rd	4th	5th	6th	7th
$ 763	1,077	1,077	1,077	1,077	1,077	1,077

CAPITAL EXPENDITURES

QUARTERLY SCHEDULE FROM DATE OF APPROVAL

($000's)

4th 1960 1st 1961 2nd 1961 3rd 1961 4th 1961

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 547	1,000	2,600	2,000	300			

COMPLETION DATE

NO. OF MONTHS REQUIRED FROM DATE OF APPROVAL

BEFORE TRIAL OPERATION BEGINS	BEFORE COMMERCIAL OPERATION BEGINS
10-1/2 - September 1, 1961	13-1/2 - December 1, 1961

APPROVAL

Recommended By	Date	Appropriation Committee	Date
Recommended By	Date	President	Date
Approved By	Date	Board	Date

Amount Included in Approved Capital Budget for Current Year	$
Amount Included in Program for Future Growth (Five Years Total)	$
Identified in the Capital Budget - Program for Future Growth As:	

[fol. 1341] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 282

Pennsalt Chemicals

Subject: Banker's Life-Travel Accident Policy
Date: November 23, 1960
To: Messrs. Collins, LaLande, Land, Lawson, McWhirter, Willits
From: W. Penfield
Copies To: C20, C92, D11, L90

The subject policy is written to cover Pennsalt and/or subsidiary and affiliated companies named in the policy. We are permitted to add or remove subsidiaries and affiliates from the listing as circumstances may from time to time require. At the present time the revised listing sent in for inclusion in the policy is as follows:

Calvert City Chemical Company
Industrial Quimica Pennsalt S.A. de C.V. (Mexico City)
International Canadian Corporation
Keystone Chemicals Limited
Minerales Pennsalt S.A. de C.V. (San Luis Potosi, SLP, Mexico)
Penn-Olin Chemicals Co. (limited to named Pennsalt employees while engaged in Penn-Olin activities)
Pennsalt Carriers Corporation
Pennsalt Chemicals of Canada Limited
Pennsalt de Mexico, S.A. (Mexico)
Pennsalt International Corp.—Western Hemisphere
Solar Salt Company
Wyandotte Southern Railroad Company

Please notify me at once if there should be any subsidiaries or affiliates added to this list, also if in your opinion any need be removed. In addition, please within ten days of the formation of any new subsidiary notify me of its formation, also telling me the names of any Pennsalt officers or employees who, even if they remain as Pennsalt employees, have also acquired officer or employee status in

the subsidiary or affiliate. This covers only such officers or employees whom we wish to cover under the policy. As further definition we cite the example of Messrs. McWhirter and Willits who have officer and director status in Penn-Olin. Penn-Olin, incidentally, classifies as an affiliate rather than a subsidiary by reason of the fact that Pennsalt does not own a majority of its voting stock.

It is particularly important that you notify me promptly and specifically of any changes of the nature mentioned above because Banker's Life have the reputation of recognizing claims only where those covered are clearly within the scope of the policy.

W.P.

WP:vb

[fol. 1342] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 286

December 21, 1960.

Mr. R. Kennedy, Niagara Falls
J. J. Garland, Baltimore
Penn-Olin Sodium Chlorate Hopper Cars

J. E. Baker,
C. C. Hightower,
J. G. Johns.

Beginning the first of January, 1961 the Penn-Olin Corporation, through Olin Mathieson as sales agent, will supply a portion of the sodium chlorate requirements at Niagara Falls.

You are probably familiar with the new hopper car that will be used. Nevertheless, we are sending along some detailed information concerning the car as well as the methods to be employed for unloading it. You will note that the recirculating hose coupler differs from the connection required for tank cars which you are now using. The attached literature points out the changes that should be made in the recirculating hose. We have sent to your attention today via air-express, a "Kanlok" 633-D aluminum coupler

which is to be attached to the unloading connector as described. We plan to have a Technical Service representative present when the first Penn-Olin chlorate shipment arrives at Niagara Falls to supervise and observe unloading. I assume this will be sometime in January 1961. I will be in touch with you directly to establish the exact date. Meanwhile, if you should have any questions concerning the modifications necessary, please contact us.

J. J. Garland.

enc.

[fol. 1343] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 287

CD-15057-4 (960)

ORIGINAL

Contract No. SC-PX7

CREDIT DEPT.
RATING AAA1
REQUIREMENTS
BUYER ORDERS IN
PRICES OF $
JAN 13 1961

OLIN MATHIESON CHEMICAL CORPORATION

CHEMICALS DIVISION

Baltimore, December 22, 1960

OLIN MATHIESON CHEMICAL CORPORATION, (hereinafter called the Seller) agrees to sell to WEST VIRGINIA PULP & PAPER CO., 230 PARK AVE., NEW YORK 17, N. Y. (hereinafter called the Buyer), and the Buyer agrees to purchase from the Seller, the following merchandise:-

Product and Quantity	Not less than 500 Tons nor more than 500 Tons per annum of SODIUM CHLORATE CRYSTALS, representing Buyer's partial or entire requirements, to be shipped from production at Seller's shipping point(s). As indicated below.
Delivery Period	From January 1, 1961 To December 31, 1961
Package	In Seller's cars
Price	EIGHT DOLLARS AND FIFTEEN CENTS ($8.15) per hundred pounds. F.O.B. Seller's shipping points, Henderson, Nevada; Portland, Oregon; Hamilton, Mississippi; or Calvert City, Kentucky; freight equalized with the lowest rail freight rate applicable at time of shipment (in either bulk covered hopper cars or tank cars) from the nearest competitive producing point to destination.
Destination of Shipments	Covington, Virginia; Luke, Md., and/or Tyrone, Pa. Wfm.
Terms of Payment	Net cash in thirty (30) days from date of invoice.

OLIN INT 50-52 D-163 both sides Garland 50-52

(hereinafter called the Buyer), and the Buyer agrees to purchase from the Seller, the following merchandise:

Product and Quantity	Not less than 500 Tons nor more than 500 Tons per annum of SODIUM CHLORATE CRYSTALS, representing Buyer's partial or entire requirements, to be shipped from production at Seller's shipping point(s). As indicated below.
Delivery Period	From January 1, 1961 To December 31, 1961
Package	In Seller's cars
Price	EIGHT DOLLARS AND FIFTEEN CENTS ($8.15) per hundred pounds. F.O.B. Seller's shipping points, Henderson, Nevada; Portland, Oregon; Hamilton, Mississippi; or Calvert City, Kentucky; freight equalized with the lowest rail freight rate applicable at time of shipment (in either bulk covered hopper cars or tank cars) from the nearest competitive producing point to destination.
Destination of Shipments	Covington, Virginia; Luke, Md., and/or Tyrone, Pa. WFM. JGJ
Terms of Payment	Net cash in thirty (30) days from date of invoice.
FURTHER TERMS AND CONDITIONS	The terms and conditions printed on the reverse side hereof are a part of this contract as effectively as though they preceded the signatures of the parties. This contract is not valid until accepted and signed by Seller.

OLIN INT 50,52 D-163 both sides Garland 50-52

Accepted:

WEST VIRGINIA PULP & PAPER CO.,

By W. F. Merrilees, P.A. 12/27/60

W. F. Merrilees, P.A.

Accepted:

CHEMICALS DIVISION
OLIN MATHIESON CHEMICAL CORPORATION

By J. G. Johns

J. G. JOHNS, GENERAL SALES MANAGER
Heavy Chemicals
Industrial Chemicals

JGJ
AHS

Notice 1/11/61 pc

869

[fol. 1344] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 288

Olin Mathieson Chemical Corporation
Chemicals Division
Mathieson Building Baltimore 3, Maryland

December 30, 1960.

Mr. Roy Shanaman, Sales Manager
Heavy Chemicals Division
Pennsalt Chemicals Corporation
2901 Taylor Way
Tacoma 2, Washington

Dear Roy:

At your suggestion I am listing below a basis for handling our sodium chlorate purchases which is consistent with the purchase arrangements for the balance of our requirements. It would greatly simplify our paper work if you are able to work with us on the same basis.

1. *Quantity:* Pennsalt will sell to Olin Mathieson, as Penn-Olin's sales agent, 1,800 to 3,000 tons of sodium chlorate for the period commencing January 1, 1961 and continuing until Calvert City production is sufficient to supply Penn-Olin requirements.

2. *Price:* $.0809 per pound in buyer's cars, f.o.b. Portland, Oregon, freight equalized with the lowest rail freight in effect at time of shipment (in either tank cars or bulk covered hopper cars) from competitive producing points in the United States to destination, less a discount of 5% on $.0809.

3. *Terms:* Net cash, 30 days.

4. *Invoicing:* Pennsalt will invoice Olin, as Penn-Olin's sales agent, on date of shipment at $.0809, less 5% resale discount, less freight equalization. Where shipments are made by mutual agreement to Olin tracks for "storage in transit" Pennsalt will withhold invoicing pending notification of release of shipment to final destination.

[fol. 1345] 5. *Transportation:* Shipments will be made freight collect excepting those cars consigned to Olin storage tracks, in which case mutually agreeable arrange-

ments for handling of freight charges will be worked out. Olin will provide Pennsalt with lease agreement covering buyer's cars in seller's plant for loading and storage, with Olin bill of lading forms, and with routing and rating information.

If the above arrangements meet with your approval, they will enable us to standardize our paper work regardless of the origin of the shipment and give us a good deal more flexibility in handling Portland tonnage.

Yours very truly, J. B. Johns, General Sales Manager, Heavy Chemicals.

Accepted:

Roy Shanaman, 1/9/61

cc: Mr. A. Clem, Pennsalt Chemicals Corporation, 3 Penn Center, Philadelphia 2, Pennsylvania.

[fol. 1346] In United States District Court

Plaintiff's Exhibit 289

Olin Mathieson Chemical Corporation

December 30, 1960.

bcc: J. O. Logan
C. L. Williamson
H. S. Hopkins
V. Woodside
W. A. Powers
J. G. McMullen

Mr. Roy Shanaman
Pennsalt Chemicals Corporation
2901 Taylor Way
Tacoma 2, Washington

Dear Roy:

Attached for your consideration is a suggested letter agreement covering that part of the Penn-Olin chlorate requirement which I understand you would be interested in supplying. I have purposely set the lower limits at the lowest minimum discussed with both you and Hugh and the

maximum at the 3,000 ton figure which you suggested. We shall do our very best to work out these arrangements so that they are satisfactory both as to quantity and timing.

I might mention that delays which held up the first deliveries of our hopper cars until late December forced us to shift the first few of these cars to Mississippi in order to meet customer delivery schedules. We are planning to shift some cars out to Portland in January to supplement the four or five cars which you will transfer to us.

We are also planning to load some of these cars on arrival and shift them to our holding tracks at Lake Charles so that we can move as much Portland material as possible early in 1961. At present we can accommodate up to eight cars on the Lake Charles holding tracks, and we would be willing to hold the maximum number of cars there if this would be convenient to you from an inventory standpoint; otherwise, we will normally have two to six cars there to take care of spot orders and short notice deliveries.

I am not quite certain if it is your desire that we begin handling deliveries for you to such points as Canton, N. C.; Demopolis, Ala.; Foley, Fla., etc., or if it is your intention that we should pick these deliveries up after Calvert City comes on stream. We will have ample cars to take care of such deliveries on a spot basis. I am also uncertain as to whether your estimates for these tonnages were included as a part of the above tonnage available for resale by Penn-Olin.

I believe our Technical Service people have already been in touch with Mr. Shera and arranged to supply drawings of our chlorate cars to facilitate replacement of your sparger tube hose coupling with the type that is standard for the Penn-Olin car connections.

Mr. Walt Powers, our manager of transportation equipment, will follow the matters of repainting and the minor change in the sparger tube hose coupling with your local Traffic people so that our Acid-Sulfur people can arrange for loading of these cars as soon as they are available.

I believe these suggestions are along the lines of our discussion; however, if I have overlooked anything, please let me hear from you.

Yours very truly, J. G. Johns.

Attachments

[fol. 1347]. In United States District Court

Plaintiff's Exhibit 294

Minutes of First Meeting of Board of Directors of Penn-Olin Chemical Company

The first meeting of the Board of Directors of Penn-Olin Chemical Company was held at 10 Light Street, Baltimore, Maryland, at 10:00 A.M., on March 8, 1960, pursuant to a consent and waiver of notice signed by all the directors of this Company.

The following directors were present, constituting a quorum of the Board of Directors:

Messrs. James McWhirter,
J. G. Johns,
W. Alfred LaLande, Jr.,
John O. Logan,
Albert H. Clem,
Cecil L. Williamson,
W. Cooper Willits

Also present at the invitation of the Board, were Messrs. Edwin E. Tuttle, Minturn Wright and C. V. Mayne.

Mr. James McWhirter was chosen temporary chairman and Mr. Cecil L. Williamson was chosen temporary secretary of the meeting.

The secretary presented and read the consent and waiver of notice of the meeting, signed by all the directors of the Company, which was ordered filed with the minutes of the meeting.

The minutes of the meeting of the incorporators were read and approved.

1. Election of Officers

The following persons were nominated for officers of the Company to serve until their respective successors are chosen and qualify:

President—James McWhirter
Vice President—John O. Logan
Secretary—Cecil L. Williamson
Treasurer—W. Cooper Willits

[fol. 1348] All the directors present having voted, the chairman announced that the aforesaid persons had been unanimously elected to the offices set before their respective names.

The president and the secretary thereupon entered upon the discharge of their duties.

2. Approval of By-Laws

The President stated that the By-Laws of the Company had been prepared and reviewed by counsel for Pennsalt Chemicals Corporation and Olin Mathieson Chemical Corporation, and approved at the first meeting of the Incorporators of the Company held on February 29, 1960. He presented to the meeting a copy of the By-Laws.

Thereupon, after consideration of such By-Laws, the following resolution, on motion duly made by Mr. John O. Logan, and seconded by Mr. W. Cooper Willits, was unanimously adopted.

> "Resolved, That the By-Laws of this Company, in the form approved and adopted at the First Meeting of the Incorporators of this Company, held on February 29, 1960, be, and they hereby are, in all respects approved and adopted as the By-Laws of this Company."

3. Form of Stock Certificate

The President presented to the meeting a form of stock certificate to evidence ownership of shares of capital stock of the Company.

Thereupon, after the terms and provisions of the stock certificate were read to the meeting, the following resolution, on motion duly made by Mr. W. Cooper Willits, and seconded by Mr. John O. Logan, was unanimously adopted:

> "Resolved, That the form of stock certificate presented and read to this meeting be, and it hereby is, approved and adopted, and that the Secretary be instructed to insert a specimen thereof in the Minute Book."

4. Corporate Seal

The President presented to the meeting a form of seal proposed for use as the corporate seal of the Company.

Thereupon, the following resolution, on motion duly made by Mr. J. G. Johns, and seconded by Mr. Albert H. Clem, was unanimously adopted:

[fol. 1349] "Resolved, That the seal, an impression of which is hereto affixed, be and it is hereby adopted as the corporate seal of the Company."

The Secretary was authorized and directed to procure the proper corporate books.

5. Bank Account

The President stated that it would be necessary to open a bank account for use in the normal operations of the business.

Thereupon, the following resolutions, on motion duly made by Mr. Cecil L. Williamson, and seconded by Dr. W. Alfred LaLande, were unanimously adopted:

"Resolved that the Treasurer of this corporation be and is hereby authorized to open and/or maintain a bank account with The First Pennsylvania Banking and Trust Company in the name and for the use of this corporation and to deposit in said account from time to time certain moneys, checks, drafts, notes and acceptances, or other evidences of indebtedness which may nor or hereafter be in possession of this corporation; and that until otherwise ordered, said Bank be and hereby is authorized to make payments from said account upon and according to the check, draft, note, or order of this corporation when signed by any of the following officers:

President, Vice President, Secretary, Treasurer

and to receive the same when so signed for the credit of, or in payment from the payee or any other holder without inquiry as to the circumstances of their issue or the disposition of their proceeds, whether drawn to the individual order or tendered in payment of individual obligations of the officers above named or other officers of this corporation or otherwise."

"Be it Further Resolved, That all checks for $25,000 or more shall be drawn only upon the prior approval in

writing by the President or Treasurer and by the Vice President or Secretary."

6. Resident Agent

The President stated that it was in order to appoint a resident agent of the Company in the State of Delaware. [fol. 1350] Thereupon, the following resolution on motion duly made by Mr. John O. Logan, and seconded by Mr. Cecil L. Williamson, was unanimously adopted:

"Resolved, That The Corporation Trust Company as the resident agent of this Company, in charge of the principal office in Delaware and of the books required by law to be kept in that office, and as the agent upon whom process against this Company may be served shall act under the direction and supervision of counsel for this Company in all matters arising out of or pertaining to such agency, including the forwarding of process served, official notices, and communications, and all service bulletins covering report and tax requirements, and the Secretary is hereby authorized to sign a certificate in accordance with this resolution."

7. Regular Board Meetings

The President suggested that a definite time and place be established for regular Board meetings.

Thereupon, the following resolution, on motion duly made by Mr. Cecil L. Williamson, and seconded by Mr. Albert H. Clem, was unanimously adopted:

"Resolved, That until otherwise ordered regular meetings of the Board of Directors shall be held on the second Tuesday of the first month of each calendar quarter at such time and place as the Board shall determine at the previous meeting."

8. Coordination Committee

The President recommended that a four-member Coordination Committee be appointed to coordinate matters involving the normal operation and management of the Company during intervals between meetings of the Board.

Thereupon, the following resolutions, on motion duly

made by Dr. W. Alfred LaLande, and seconded by Mr. J. G. Johns, were unanimously adopted:

"Resolved, That there be and hereby is established a Coordination Committee to consist of four members of the Board of Directors, which shall have and may exercise all the powers of the Board; during the intervals between meetings of the Board, in the normal operation and management of the business and affairs of this Company, including the power to authorize the seal of this Company to be affixed to all papers which may require it.

[fol. 135] "Be it Further Resolved, [That the Coordination Committee shall keep regular minutes of its proceedings and report all actions taken to the Board at the meeting thereof next succeeding the taking of such action;] that the members of the Coordination Committee shall act only as a committee and the individual members thereof shall have no power as such; that the presence at any meeting of the Coordination Committee of three members thereof shall be necessary to constitute a quorum for the transaction of business, and in every case the affirmative vote of three members of the Coordination Committee shall be necessary for the adoption of any resolution; and that the Coordination Committee shall fix its own rules of procedure and shall meet where and as provided by such rules.

"Be it Further Resolved, That Messrs. J. L. Wood, John O. Logan, W. Cooper Willits and James McWhirter, be and they are hereby designated as members of the Coordination Committee."

9. Issuance of Capital Stock

The President recommended that in order to provide the minimum capital necessary under Delaware law and the Company's Certificate of Incorporation to commence business, the Board of Directors should approve a call on Pennsalt Chemicals Corporation and Olin Mathieson Chemical Corporation for the purchase of one share by each of the Capital Stock at a price of $1,000.00 in cash, all of which would be allocated to the Company's capital account.

Thereupon, the following resolution, on motion duly made by Mr. John O. Logan, and seconded by Dr. W. Alfred LaLande, was unanimously adopted:

> "Resolved, That this Company call upon Pennsalt Chemicals Corporation and Olin Mathieson Chemical Corporation to purchase respectively one (1) share of Capital Stock par value $1.00 per share of this Company, at a price of $1,000.00 per share in cash, and that the entire cash consideration of $2,000.00 received by this Company in payment for said shares of Capital Stock shall be allocated to capital."

10. Fees and Expenses of Organization

The President stated that provision should be made for reimbursement of the fees and expenses incurred in the organization of the Company.

Thereupon, the following resolution, on motion duly made by Mr. W. Cooper Willits, and seconded by Mr. Cecil L. Williamson, was unanimously adopted:

> [fol. 1352] "Resolved, That subject to the prior approval of the Coordination Committee, the Treasurer be and he is hereby authorized to pay all fees and expenses incident and necessary for the organization of this Company."

11. Next Meeting

By unanimous consent the next Board Meeting will be held at 10:00 A.M., on April 12, 1960, at Three Penn Center, Philadelphia, Pennsylvania.

12. Adjournment

On motion of Mr. John O. Logan, seconded by Mr. Albert H. Clem, the meeting was adjourned.

C. L. Williamson, Secretary.

[fol. 1353] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 295

Olin Mathieson Chemical Corporation

Date: 4/22/60.

To: Mr. James McWhirter at Pennsalt Chemicals Corporation
From: C. L. Williamson at OMCC
Subject:

Dear Jim:

The attached stock certificates No. 1 and No. 2, in favor of Pennsalt and OMCC, respectively, require your signature as President.

After signing same, please see that certificate No. 2, in our favor, is returned to me and you will want to process your own certificate as your judgment dictates.

With kindest regards,

Sincerely, C. L. Williamson.

Attachments (2)

[fol. 1354] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 299

Penn-Olin Chemical Company
100 West 10th Street
Wilmington 99, Del.

November 9, 1960.

James McWhirter, President
W. Cooper Willits, Treasurer
Copy

Bryce, Send Ck.—OC

Mr. Walter F. O'Connell, Vice President
Olin Mathieson Chemical Corporation
460 Park Avenue, New York 22, New York

Dear Walter:

At the quarterly meeting of the Board of Directors of Penn-Olin Chemical Company held on October 20th in Baltimore, the following resolution was unanimously adopted:

> Resolved, that the Corporate Finance Officers of Olin Mathieson Chemical Corporation and Pennsalt Chemicals Corporation be and they hereby are authorized and directed to make calls jointly in behalf of Penn-Olin Chemical Company upon Olin Mathieson Chemical Corporation and Pennsalt Chemicals Corporation for funds as needed, in keeping with the Letter Agreement dated February 11, 1960 and the definitive joint venture agreement to be entered into pursuant thereto.

As you probably know, considerable expenses have been incurred to date which have been borne by the respective parents, and in order to clarify this matter, I believe it would now be advisable for each parent to invest an additional $75,000 in Penn-Olin (at present each parent has invested $1,000) and thereby enable the parents to clear up these deferred expenses.

OK, WOC.

If you are in accord with this recommendation, will you please forward me on behalf of the Olin Mathieson Chemical Corporation a check in the amount of $75,000 payable to Penn-Olin Chemical Company. I in turn will have Pennsalt issue a similar check and, upon receipt of both checks, deposit them in the Penn-Olin Chemical Company account at the First Pennsylvania Banking and Trust Company.

When C. L. Williamson, Secretary of Penn-Olin Chemical Company, receives confirmation of these deposits, he will issue to each parent 75 shares of Penn-Olin Chemical Company common stock with a par value of $1,000 per share.

[fol. 1355] Should you have any questions regarding this matter during my absence for the next ten days, please call Edwin E. Tuttle, Controller, Pennsalt Chemicals Corporation, who is entirely familiar with the situation.

Sincerely yours, W. Cooper Willits, Treasurer.

wcw/r

[fol. 1356] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 300

Olin Mathieson Chemical Corporation

November 11, 1960.

Mr. W. Cooper Willits, Treasurer
Penn-Olin Chemical Company
3 Penn Center
Philadelphia 2, Pennsylvania

Dear Mr. Willits:

Attached is Olin Mathieson Chemical Corporation check for $75,000, payable to Penn-Olin Chemical Company. These funds are payment for 75 shares of Penn-Olin Chemical Company common stock, in accordance with your letter of November 9th to Walter F. O'Connell.

We understand that the 75 shares will be sent to us by C. L. Williamson as soon as you notify him that these funds have been received.

Very truly yours, Richard Bryce.

Encl.

cc—Mr. Walter F. O'Connell, Mr. C. L. Williamson.

Note to Mr. Williamson

When you send us these shares for safekeeping in the company vault here, will you please also send the one share which has previously been paid for, making a total of 76 shares in all.

[fol. 1357] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 302

Copy to R. Bryce

Penn-Olin Chemical Company
100 West 10th Street
Wilmington 99, Del.

December 23, 1960.

James McWhirter, President
W. Cooper Willits, Treasurer
Mr. Walter F. O'Connell, Vice President
Olin Mathieson Chemical Corporation
460 Park Avenue, New York 22, New York

Dear Walter:

As agreed last week, I am pleased to enclose a schedule of estimated capital requirements for Penn-Olin. Capital expenditures to date are just about on schedule, and it is expected by December 31, 1960, that the following items will be paid or payable:

Field Engineering Charges	$ 280,000
United Engineers & Constructors, Inc.—	
Engineering Charges	190,000
Pennsalt Engineering	40,000
	$ 510,000

As you are aware, $152,000 has been received from the parent companies. Of this amount, $2,000 represented the initial investment made sometime ago and $150,000 the call made last November. The difference, $358,000, ($510,000—$152,000) has been or will be borne by Pennsalt by the end

of the year unless a call for additional funds is made. Naturally, we would like to clear this item off our books by year-end.

Accordingly, as resolved at the quarterly meeting of the Board of Directors of Penn-Olin on October 20, I ask that you join me in requesting that each parent invest an additional $200,000 in Penn-Olin, which will certainly be adequate to take care of these expenses.

OK, WOC, per RJT.

If you are in accord with this recommendation, will you please forward me on behalf of the Olin Mathieson Chemical Corporation a check in the amount of $200,000 payable to Penn-Olin Chemical Company. I in turn will have Pennsalt issue a similar check and, upon receipt of both checks, deposit them in the Penn-Olin Chemical Company account at the First Pennsylvania Banking and Trust Company. [fol. 1358] When C. L. Williamson, Secretary of Penn-Olin Chemical Company, receives confirmation of these deposits, he will issue to each parent 200 shares of Penn-Olin Chemical Company common stock with a par value of $1.00 per share.

As suggested, I am enclosing an additional copy of this schedule for Richard Bryce, Treasurer of Olin Mathieson.

With best *best* for a happy holiday season, I am

Sincerely yours, W. Cooper Willits, Treasurer.

wcw/r

cc to Messrs. Williamson, Logan, McWhirter, Niederriter, Tuttle.

[fol. 1359] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 303

Olin Mathieson Chemical Corporation
460 Park Avenue
New York 22, New York

December 29, 1960.

Please acknowledge

Mr. W. Cooper Willits, Treasurer
Penn-Olin Chemical Company
3 Penn Center
Philadelphia 2, Pennsylvania

Dear Mr. Willits:

Attached is Olin Mathieson Chemical Corporation check for $200,000, payable to Penn-Olin Chemical Company. These funds are payment for 200 shares of Penn-Olin Chemical Company common stock, in accordance with your letter of December 23rd to Walter F. O'Connell.

We understand that the 200 shares will be sent to us by C. L. Williamson as soon as you notify him that these funds have been received.

Very truly yours, Donald R. Jackson, First Asst. Treas.

Encl.

[fol. 1360] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 305

January 6, 1961.

Mr. C. L. Williamson, Secretary
Penn-Olin Chemical Company
Mathieson Building
Baltimore 3, Md.

Dear Mr. Williamson:

Mr. Willits is again out of town so I am writing this letter in his stead.

I am attaching, first of all, a deposit slip recording the January 3 deposit to the Penn-Olin account of $400,000. This represents $200,000 from Pennsalt and $200,000 from Olin, against which 200 shares of Penn-Olin stock should be issued to each company in accordance with the regular procedure.

Secondly, I am attaching an invoice from Pennsalt to Penn-Olin amounting to $302,490.86 covering Pennsalt expenditures for the Chlorate plant which are chargeable to Penn-Olin. This invoice has been approved by Mr. McWhirter, and I would appreciate your adding your approval, returning the original to me so that we can draw the necessary check.

Yours very truly, Edwin E. Tuttle, Controller.

EET:EF
(Encl.)
C13
M44-N22
W1

[fol. 1361] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 306

Penn-Olin Chemical Company
100 West 10th Street
Wilmington 99, Del.

January 9, 1961.

J. O. Logan, Vice President.
C. L. Williamson, Secretary.
Mr. W. Cooper Willits, Treasurer
Pennsalt Chemicals Corporation
3 Penn Center
Philadelphia 2, Pennsylvania

Dear Mr. Willits:

This will serve to certify that $76,000.00 has been received from Olin Mathieson Chemical Corporation along with a like sum from Pennsalt Chemicals Corporation.

Deposits have been made of said sums, and the stock certificates have not yet been issued, but we expect that they will be in the relative near future.

With best regards,

Very truly yours, Penn-Olin Chemical Company, C. L. Williamson, Secretary.

CLW:mcs

[fol. 1362] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 308

Penn-Olin Chemical Company
100 West 10th Street

Wilmington 99, Del.

January 13, 1961.

J. O. Logan, Vice President.
C. L. Williamson, Secretary.
Mr. W. Cooper Willits, Treasurer

Pennsalt Chemicals Corporation
3 Penn Center
Philadelphia 2, Pennsylvania

Dear Mr. Willits:

This will serve to certify that during the year 1960 Penn-Olin Chemical Company received from Pennsalt Chemicals Corporation $76,000.00, for which common stock is to be issued. To date, one share of stock has been issued, and the certificates for the remaining 75 shares will be issued in the relatively near future.

Very truly yours, Penn-Olin Chemical Company,
C. L. Williamson, Secretary.

CLW:mcs

[fol. 1363] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 309

Olin Mathieson Chemical Corporation
460 Park Avenue, New York 22, New York

January 18, 1961.

Mr. C. L. Williamson, Secretary
Penn-Olin Chemical Company
10 Light Street
Baltimore 3, Maryland

Dear Mr. Williams:

In connection with the year end audit of our books, will you please confirm directly to our auditors, Peat, Marwick, Mitchell & Co., 70 Pine Street, New York 5, New York, that as of December 31, 1960, you received from Olin Mathieson Chemical Corporation $276,000 in payment of 276 shares of common stock, $1.00 par value, of Penn-Olin Chemical Company.

Will you further confirm that these shares were not issued or delivered to Olin Mathieson Chemical Corporation as of December 31, 1960.

We are enclosing a copy of this letter which you may sign as a confirmation of the above. A stamped self-addressed envelope is also enclosed for your convenience.

Replied 3/3/61.

Very truly yours, Donald R. Jackson, First Asst. Treas.

[fol. 1364] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 310

Penn-Olin Chemical Company
100 West 10th Street
Wilmington 99, Del.

February 3, 1961.

James McWhirter, President.
W. Cooper Willits, Treasurer.
Mr. Walter F. O'Connell, Vice President
Olin Mathieson Chemical Corporation
460 Park Avenue, New York 22, New York

Dear Walter:

Since the last settlement between Penn-Olin Chemical Company and Pennsalt, covering which statements have been rendered, we have accumulated expenditures somewhat in excess of $200,000. This amount is about in line with the schedule of estimated expenditures which was attached to my letter to you dated December 23, 1960.

In view of the fact that these costs have already been borne with Pennsalt funds, I ask that you join me in requesting that each parent invest an additional $100,000 in Penn-Olin. If you are in accord with this recommendation, will you please forward me on behalf of the Olin Mathieson Chemical Corporation a check in the amount of $100,000 payable to Penn-Olin Chemical Company. I, in turn, will have Pennsalt issue a similar check and, upon receipt of both checks, deposit them in the Penn-Olin Chemical Company account at the First Pennsylvania Banking and Trust Company.

When C. L. Williamson, Secretary of Penn-Olin Chemical Company, receives confirmation of these deposits and the agreements have been executed, he will issue to each parent 100 shares of Penn-Olin Chemical Company common stock covering this investment.

I am enclosing for your information a Penn-Olin Balance Sheet as of December 31, 1960.

Sincerely yours, W. Cooper Willits, Treasurer.

wcw/r
encl.

cc to Messrs. Logan and Williamson

[fol. 1365] In United States District Court

Plaintiff's Exhibit 311

Olin Mathieson Chemical Corporation

February 9, 1961.

Mr. W. Cooper Willits, Treasurer
Penn-Olin Chemical Company
3 Penn Center
Philadelphia 2, Pennsylvania

Dear Mr. Willits:

Attached is Olin Mathieson Chemical Corporation check for $100,000, which is to be treated as an advance to Penn-Olin Chemical Company.

In the attachment to your letter of February 3rd to Mr. W. F. O'Connell—Notes to Balance Sheet—the following statement is made: "As of December 31, 1960, stock certificates have not been issued to Pennsalt Chemicals Corporation and Olin Mathieson Chemical Corporation for respective purchases of 75 shares on November 17, 1960, and 200 shares on January 3, 1961." It is our understanding that we have paid for a total of 276 shares of stock, as our initial disbursement was for $1,000, covering one share of stock. Will you please let me know whether this is correct.

Very truly yours, ——, ——.

DRJ:lhp
Encl.

cc—Mr. Walter F. O'Connell, Mr. C. L. Williamson.

[fol. 1366] In United States District Court

Plaintiff's Exhibit 312

Penn-Olin Chemical Company

February 10, 1961.

Mr. Richard Bryce, Treasurer
Olin Mathieson Chemical Corporation
460 Park Avenue
New York 22, New York

Dear Mr. Bryce:

This will acknowledge with thanks Olin Mathieson Chemical Corporation's check in the amount of $100,000, transmitted with your letter of February 9.

The "Notes to the Balance Sheet" and your understanding regarding the number of shares purchased to date are both correct. A stock certificate was issued for the first share purchased. Since then the Secretary of Penn-Olin Chemical Company has not seen fit to issue additional shares, pending execution of certain agreements. Mr. Williamson has furnished us with the following certification:

> "This will serve to certify that during the year 1960 Penn-Olin Chemical Company received from Pennsalt Chemicals Corporation $76,000.00, for which common stock is to be issued. To date, one share of stock has been issued, and the certificates for the remaining 75 shares will be issued in the relatively near future."

The certification, as you see, covers only the calendar year 1960, the additional 200 shares having been purchased as of January 3, 1961.

Very truly yours, W. Cooper Willits, Treasurer.

wcw/r

cc Mr. O'Connell
Mr. Williamson

[fol. 1367] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 313

Pennsalt Chemicals Corporation

Three Penn Center, Philadelphia 2, Pennsylvania

February 17, 1961

Mr. C. L. Williamson, Secretary
Penn-Olin Chemical Company
Mathieson Building
Baltimore 3, Md.

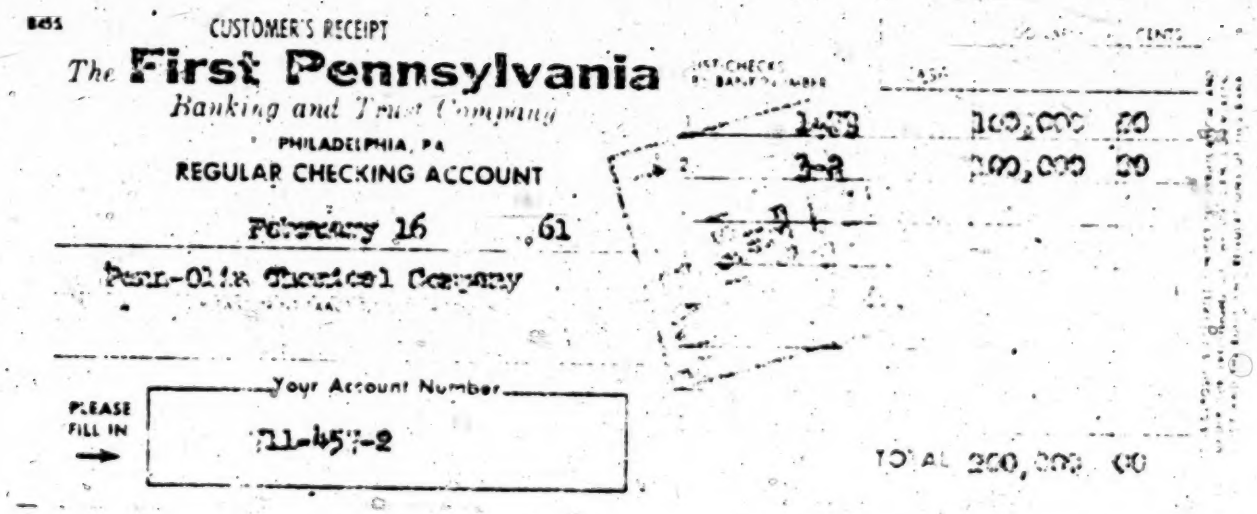
Dear Mr. Williamson:

I am attaching a copy of the deposit slip covering the February 16 deposit to the Penn-Olin account of $200,000. This represents $100,000 from Pennsalt and $100,000 from Olin, against which 100 shares of Penn-Olin stock should be issued to each company in accordance with the regular procedure.

Yours very truly, Edwin E. Tuttle, Controller.

EET:EF
(Encl.)

[fol. 1368]



CUSTOMER'S RECEIPT

The **First Pennsylvania**
Banking and Trust Company
PHILADELPHIA, PA

REGULAR CHECKING ACCOUNT

February 16 61

Penn-Olin Chemical Company

CUST. CHECKS BY BANK NUMBER	CASH	DOLLARS	CENTS
1	1453	100,000	00
2	3-2	100,000	00

TOTAL 200,000 00

PLEASE FILL IN → Your Account Number 711-457-2

YOUR BUSINESS [illegible]

895

[fol. 1369] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 314

Penn-Olin Chemical Company
100 West 10th Street
Wilmington 99, Del.

March 14, 1961.

James McWhirter, President.
W. Cooper Willits, Treasurer.
Mr. Walter F. O'Connell, Vice President
Olin Mathieson Chemical Corporation
460 Park Avenue, New York 22, New York

Dear Walter:

Expenditures during the month of February amounted to $246,589.01 and have been borne by Pennsalt, and a detailed statement has been sent to Cecil Williamson for his approval as Secretary. As of today, the Penn-Olin checking account has a balance of $54,932.37. Accordingly, once Cec Williamson approves payment of the aforementioned expenditures, funds in bank will be inadequate to cover payment. I, therefore, suggest that another call be made for funds on the part of both parents in the total amount of $248,000.

While it is true that a $200,000 call would be adequate to cover these February expenditures, my reason for selecting the higher amount is that it will make a total contribution of $1,000,000 ($500,000 per parent). As you know, it is presently anticipated that total parental financing will exist of $1,000,000 in equity and $2,000,000 of subordinated debentures.

Assuming that you join me in approving of this final call on equity investment, it points to the necessity of finalizing the various agreements for Penn-Olin Chemical Company. You will recall that all concerned at our meeting in January (management and counsel of both parents) considered it advisable that these agreements be completed and executed. This is further evidence of the desirability for such action. Please advise me if in your opinion there is anything at my end that can be done to expedite this matter.

If you are in accord with this recommendation, will you pelase forward me on behalf of the Olin Mathieson Chemical Corporation a check in the amount of $124,000 payable to Penn-Olin Chemical Company. I, in turn, will have Pennsalt issue a similar check and, upon receipt of both checks, deposit them in the Penn-Olin Chemical Company account at the First Pennsylvania Banking and Trust Company.

[fol. 1370] When Cecil Williamson, Secretary of Penn-Olin Chemical Company, receives confirmation of these deposits and the agreements have been executed, he will issue to each parent 124 shares of Penn-Olin Chemical Company common stock covering this investment.

Sincerely yours, W. Cooper Willits, Treasurer.

wcw/r
cc to Messrs. Bryce, Williamson.

[fol. 1371] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 315

Olin Mathieson Chemical Corporation

March 21, 1961.

Mr. W. Cooper Willits, Treasurer
Penn-Olin Chemical Company
3 Penn Center
Philadelphia 2, Pennsylvania

Dear Mr. Willits:

Attached is Olin Mathieson Chemical Corporation check for $124,000, in accordance with the fourth paragraph of your letter of March 14th to Mr. Walter F. O'Connell.

Very truly yours, Donald R. Jackson, First Asst. Treas.

Encl.

cc—Mr. Walter F. O'Connell, Mr. C. L. Williamson.

[fol. 1372] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 316

Pennsalt Chemicals Corporation

Three Penn Center, Philadelphia 2, Pennsylvania

March 23, 1961.

Mr. C. L. Williamson, Secretary
Penn-Olin Chemical Company
Mathieson Building
Baltimore 3, Md.

Dear Mr. Williamson:

I am attaching a copy of the deposit slip covering the March 22 deposit to the Penn-Olin account of $248,000. This represents $124,000 from Pennsalt and $124,000 from Olin, against which 124 shares of Penn-Olin stock should be issued to each company in accordance with the regular procedure.

Yours very truly, Edwin E. Tuttle, Controller.

EET:EF
(Encl.)

[fol. 1373] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 317

711-457-2

REC'D C. L. W.

APR -5 1960

PENN-OLIN CHEMICAL COMPANY
% MR. C. L. WILLIAMSON, SECY.
MATHIESON BLDG.,
BALTIMORE 3, MD.

NOTIFY
CHANGE
OF ADDRESS

DUP.

B-194T 11-59

CHECKS	DEPOSITS	DATE	BALANCE
	2,000.00 +	MAR 22 '60	2,000.00 *

% MR. C. L. WILLIAMSON, SECY.
MATHIESON BLDG.,
BALTIMORE 3, MD.

DUP.

NOTIFY
CHANGE
OF ADDRESS

B-134T 11-58

CHECKS	DEPOSITS	DATE	BALANCE
	2,000.00 +	MAR 22 '60	2,000.00 *

PLEASE EXAMINE AT ONCE IF NO ERROR IS REPORTED IN TEN DAYS THE ACCOUNT WILL BE CONSIDERED CORRECT

LAST AMOUNT IN THIS COLUMN IS YOUR BALANCE

THE FIRST PENNSYLVANIA
BANKING AND TRUST COMPANY
PHILADELPHIA 1, PA.

KEY LS—TOTAL OF LIST
SC—SERVICE CHARGE FOR PREVIOUS MONTH'S ACTIVITY (NO ENCLOSURE)

T 33

901

[fol. 1374] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 320

711-457-2

REC'D C. L. W.

DEC - 5 1960

PENN-OLIN CHEMICAL COMPANY
% MR. C. L. WILLIAMSON, SECY.
MATHIESON BLDG.,
BALTIMORE 3, MD.

NOTIFY
CHANGE
OF ADDRESS

DUP.

E-194T 11-58

CHECKS	DEPOSITS	DATE	BALANCE
		NOV 1'60	1,802.09+
	150,000.00+	NOV 17'60	151,802.09+

BALTIMORE 3, MD. OF ADDRESS

DUP.

B-1547 11-58

CHECKS	DEPOSITS	DATE	BALANCE
		NOV 1'60	1,802.09+
	150,000.00+	NOV 17'60	151,802.09+

PLEASE EXAMINE AT ONCE IF NO ERROR IS REPORTED IN TEN DAYS THE ACCOUNT WILL BE CONSIDERED CORRECT

LAST AMOUNT IN THIS COLUMN IS YOUR BALANCE

THE FIRST PENNSYLVANIA
BANKING AND TRUST COMPANY
PHILADELPHIA 1, PA.

KEY LS—TOTAL OF LIST
SC—SERVICE CHARGE FOR PREVIOUS MONTH'S ACTIVITY (NO ENCLOSURE)

T 33

206

Plaintiff's Exhibit 322

711-457-2

REC'D C. L. W.

FEB -6 1961

PENN-OLIN CHEMICAL COMPANY
% MR. C. L. WILLIAMSON, SECY.
MATHIESON BLDG.,
BALTIMORE 3, MD.

NOTIFY
CHANGE
OF ADDRESS

DUP.

8-1947 11-56

CHECKS	DEPOSITS	DATE	BALANCE
		J. 31	20,299.65+
	400,000.00+	J. 31	420,299.65
307,420.85-		11	117,808.79
55,608.42-		J. 30	62,200.37

[fol. 1376] In United States District Court

Plaintiff's Exhibit 323

711-457-2

REC'D C. L. W.
MAR - 3 1961

PENN-OLIN CHEMICAL COMPANY
% MR. C. L. WILLIAMSON, SECY.
MATHIESON BLDG.,
BALTIMORE 3, MD.

NOTIFY
CHANGE
OF ADDRESS

DUP.

B-134T 11-58

CHECKS	DEPOSITS	DATE	BALANCE
		FEB 1'61	62,200.37 *
	200,000.00 +	[illegible]	262,200.37 *
206,315.44 -		FEB 20'61	55,884.93 *

[fol. 1377] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 324

PENN-OLIN C24

711-457-2

REC'D C. L.

APR -5 1961

PENN-OLIN CHEMICAL COMPANY
% MR. C. L. WILLIAMSON, SECY.
MATHIESON BLDG.,
BALTIMORE 3, MD.

NOTIFY
CHANGE
OF ADDRESS
DUP.

CHECKS	DEPOSITS	DATE	BALANCE
			55884.73
752.56-			54932.37
246587.01-	248000.00	22	302932.37
600.66-		23	56343.36
		30	55742.70

[fol. 1378] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 328

Penn-Olin Chemical Company

Statement as of April 11, 1960

Cash Receipts		$2,000.00
Disbursements:		
Stock Certificates, Minute Book and Seal		37.50
Cash Balance April 11, 1960		$1,962.50
Pennsalt Chemicals Corporations—Deferred Expenses:		
Traveling Expenses—J. L. Wood to New York		4.09
A. H. Clem to Baltimore		18.71
W. A. LaLande to Baltimore		15.05
J. McWhirter to Baltimore		20.96
E. E. Tuttle to Baltimore		21.11
W. C. Willits to Baltimore		17.26
K. Earnest—to Phila. & return to Portland		525.86
E. H. Karr—to Phila. & return to Tacoma		506.52
K. Earnest—to Tacoma & return to Portland		44.71
Re: visit to Portland by Olin-Mathieson personnel		37.21
E. H. Karr—to Portland & return to Tacoma		40.59
J. Heitman—to Portland & return to Tacoma		44.62
Engineering Salaries for March 1960		167.14
Expenses A. S. Woodard to Europe 3-2 to 3-25		797.95
		$2,261.78

TPC:EF

4-11-60

[fol. 1379] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 329

Penn Olin Chemical Company Balance Sheet—April 30, 1960

Assets

Current Assets	
Cash	$1,962.50
Deferred Charges	
Organization Expense	37.50
Total	$2,000.00

Liabilities and Shareholders' Investment

Shareholders' Investment	
Capital Stock ($1.00 par)	$ 2.00
Additional paid-in-capital	1,998.00
Total Shareholders' Investment	$2,000.00
Total	$2,000.00

[fol. 1380] Pennsalt Chemicals Corporation

Deferred Expense Account Penn Olin

March Charges		
Expenses A. H. Clem to Baltimore	$ 2.70	
Expenses J. McWhirter to Baltimore	5.90	
Expenses W. C. Willits to Baltimore	5.70	
Expenses E. E. Tuttle to Baltimore	6.05	
Rail Fare A. H. Clem to Baltimore	16.01	
Rail Fare W. A. LaLande to Baltimore	15.05	
Rail Fare J. McWhirter to Baltimore	15.06	
Rail Fare E. E. Tuttle to Baltimore	15.06	
Rail Fare W. C. Willits to Baltimore	11.56	
Rail Fare J. L. Wood to New York	4.09	
Total as of March 31, 1960		$ 97.18
April Charges		
Expenses K. Earnest to Phila. and return to Portland	525.86	
Expenses E. H. Karr to Phila. and return to Tacoma	506.52	
Expenses K. Earnest to Tacoma and return to Portland	44.71	
Expenses K. Earnest re: visit to Portland by Olin Mathieson personnel	37.21	
Expenses E. H. Karr to Portland and return to Tacoma	40.59	
Expenses J. Heitman to Portland and return to Tacoma	44.62	
Expenses A. S. Woodard to Europe 3/2/60 to 3/25/60	797.95	
Expenses A. S. Woodard to Portland, Oregon and Calvert City, Kentucky	91.40	
Professional Services—Barnes, Dechert, Price, Meyers and Rhoads	1800.00	
Air freight and insurance on 10 lb. sample of salt shipped from Calvert City, Kentucky to Krebs & Co. Ltd., Zurich, Switzerland	14.84	
Expenses F. M. Dorley at Calvert City, Kentucky	16.20	
Trucking sample of salt from Calvert City, Kentucky to airfield at Louisville, Kentucky for shipment to Krebs & Co.	3.00	
Emery Air Freight 1 carton rock salt shipped to Societe Electrochemie, France	13.92	
Total for April		3,936.82
Total as of April 30, 1960		$4,034.00

[fol. 1381] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 330

Penn-Olin Chemical Company Balance Sheet

May 31, 1960

Assets	
Current Assets	
Cash	$1,962.50
Deferred Charges	
Organization Expense	37.50
Total	$2,000.00
Liabilities and Shareholders' Investment	
Shareholders' Investment	
Capital Stock ($1.00 par)	2.00
Additional paid-in capital	1,998.00
Total Shareholders' Investment	$2,000.00
Total	$2,000.00

[fol. 1382] Pennsalt Chemicals Corporation

Deferred Expense Account Penn-Olin

March Charges		
Expenses A. H. Clem to Baltimore	2.70	
Expenses J. McWhirter to Baltimore	5.90	
Expenses W. C. Willits to Baltimore	5.70	
Expenses E. E. Tuttle to Baltimore	6.05	
Rail Fare A. H. Clem to Baltimore	16.01	
Rail Fare W. A. LaLande to Baltimore	15.05	
Rail Fare J. McWhirter to Baltimore	15.06	
Rail Fare E. E. Tuttle to Baltimore	15.06	
Rail Fare W. C. Willits to Baltimore	11.56	
Rail Fare J. L. Wood to New York	4.09	
Total as of March 31, 1960		$ 97.18
April Charges		
Air Travel K. Earnest—Tacoma to Phila. and return to Portland	405.35	
Expenses K. Earnest—Tacoma to Phila., Paducah and return to Portland	165.22	
Expenses K. Earnest—at Portland	37.21	
Air Travel E. H. Karr—Tacoma to Phila. and return	366.92	
Expenses E. H. Karr—Tacoma to Phila. and return	139.60	
Expenses E. H. Karr—Tacoma to Portland and return	40.59	

[fol. 1383]

Expenses J. B. Heitman—Tacoma to Portland and return	44.62	
Expenses A. S. Woodard to Europe 3-2-60 to 3-25-60	797.95	
Expenses A. S. Woodard to Portland, Oregon and Calvert City, Ky.	91.40	
Professional Services Barnes, Dechert, Price, Meyers and Rhoads	1,800.00	
Air Freight and Insurance on 10 lb. sample of Salt shipped from Calvert City, Ky. to Krebs & Co. Ltd., Zurich, Switzerland	14.84	
Expenses F. M. Dorley at Calvert City, Ky.	16.20	
Trucking sample of Salt from Calvert City, Ky. to Air Field at Louisville, Ky. for shipment to Krebs & Co.	3.00	
Emery Air Freight 1 carton Rock Salt shipped to Societe Electrochimie, France	13.92	
Total for April		3,936.82
Total as of April 30, 1960		$4,034.00

[fol. 1384] Pennsalt Chemicals Corporation

Deferred Expense Account Penn-Olin

May Charges

Air Travel E. H. Karr—Tacoma to Paris and return	1,548.26	
Expenses E. H. Karr—Tacoma to San Francisco, New York, Paris and Zurich	252.02	
Expenses E. H. Karr—Zurich to France, England and return to Tacoma	266.81	
Expenses J. B. Heitman—Tacoma to Portland and return	53.47	
Telephone & Telegraph Expenses at Tacoma	50.67	
Trucking 1 drum Rock Salt and 1 carboy River Water from Calvert City to Portland, Ore.	15.54	
Preliminary Engineering—Sodium Chlorate Plant:		
Salaries	2,431.74	
Expenses J. L. Marshall—Phila. and Portland and return	65.28	
Expenses R. R. Walden—Phila.—Portland and return	86.00	
Expenses A. S. Woodard—Phila.—Portland and return	110.98	
Expenses K. M. Karnahan—Paducah to Portland and return	138.25	
Expenses L. J. Istas at Portland	16.50	
Photostats—Bernard Aronson	35.36	
Air Travel—A. S. Woodard—Phila. to Portland and return	315.50	

[fol. 1385]

Customs Clearance and forwarding 1 sample parcel Sodium Chlorate from Paris to W. J. Earnest, Portland, Oregon	6.50	
Expenses G. A. Nelson—Wyandotte, Mich. to Phila. and return	89.49	
Boxing Porcelain Funnels for shipment to Portland, Oregon plant	14.58	
Total for May		5,497.04
Total as of May 31, 1960		$9,531.04

TPC:EF
6-28-60

[fol. 1386] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 336

Olin Mathieson Chemical Corporation

Date: February 27, 1961.

Copy to: Mr. J. O. Logan

To: Mr. C. L. Williamson (3) at Baltimore
From: C. V. Mayne at Baltimore
Subject: Penn-Olin

Attached is a schedule which shows the net sales of sodium chlorate and the pre-tax loss thereon for the month of January, 1961. These sales fall into the pre-operating period as referred to in the sales agreement between OMCC and Penn-Olin and, as such, the profit or loss for 1961 is subject to a final accounting at the year end. Depending on circumstances, the final accounting will result in either the total profit or loss as shown on our books being charged to Penn-Olin, or one half the total profit or loss as shown on our books being credited or charged to Pennsalt.

Extra copies of the schedule have been furnished for distribution to appropriate Penn-Olin officers.

C. V. Mayne.

CVM:jlt

Attachments

[fol. 1387] Penn-Olin Chemical Company

Sodium Chlorate Sales and Earnings

January 1961

Particulars	Tons	Per Unit	Amount
Net Sales			
International Paper Co.	210.630		33,832.69
Brunswick Pulp & Paper Co.	58.810		9,586.03
O.M.C.C.-Niagara Falls	52.830		4,548.11
	322.270	148.841	47,966.83
Cost of Sales			
Cost of Purchased Sodium Chlorate	322.270		46,359.72
Hopper Car Rental	—		3,500.00
	322.270	154.714	49,859.72
Expenses			
Administrative, Selling and Advertising @ 6% of Net Sales			2,878.00
Total Cost of Sales and Expenses			52,737.72
Pre-Tax Profit Loss			*4,770.89*

[fol. 1388] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 337

Penn-Olin Chemical Company

Sodium Chlorate Sales and Earnings

January 1961

Particulars	Tons	Per Unit	Amount
Net Sales			
International Paper Co.	210.630		33,832.69
Brunswick Pulp & Paper Co.	58.810		9,586.03
O.M.C.C.-Niagara Falls	52.830		4,548.11
	322.270	148.841	47,966.83
Cost of Sales			
Cost of Purchased Sodium Chlorate	322.270		46,359.72
Hopper Car Rental	—		3,500.00
	322.270	154.714	49,859.72
Expenses			
Administrative, Selling and Advertising @ 6% of Net Sales			2,878.00
Total Cost of Sales and Expenses			52,737.72
Pre-Tax Profit Loss			*4,770.89*

[fol. 1389] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 338

Penn-Olin Chemical Company
Sodium Chlorate Sales and Earnings
February 1961

Particulars	Month Tons	Month Per Unit	Month Amount	To-Date Tons	To-Date Per Unit	To-Date Amount
Net Sales						
International Paper Company	431.860		66,218.69	642.490		100,051.38
Brunswick Pulp & Paper Company	109.280		17,812.64	168.090		27,396.67
OMCC—Niagara Falls	110.870		14,030.95	163.700		18,579.06
West Virginia Pulp & Paper Company	106.400		15,439.58	106.400		15,439.58
St. Marys Kraft Corporation	52.340		8,531.42	52.340		8,531.42
Scott Paper Company	44.100		7,008.30	44.160		7,008.30
	854.850	150.952	129,041.58	1,177.120	150.374	177,008.41
Cost of Sales						
Cost of Purchased Sodium Chlorate	854.850		122,262.32	1,177.120		168,622.04
Hopper Car Rental	—		5,475.00	—		8,975.00
Miscellaneous Costs	—		66.10	—		66.10
	854.850	149.503	127,803.42	1,177.120	150.930	177,663.14
Expenses						
Administrative, Selling and Advertising @ 6% of Net Sales			7,742.00			10,620.00
Total Cost of Sales and Expenses			135,545.42			188,283.14
Pre-Tax Profit Loss			*6,503.84*			*11,274.73*

915

[fol. 1390] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 339

Capital Investment Policy No. 1

Expansion by Construction or Purchase of Facilities

Projects involving expansion of our operations must show a calculated return on total capital of 25% or more and must have a minimum pay-out period of 5½ years.

Explanation

Expansion of Our Operations

This means either increasing the capacity of an existing unit, installing a new unit at a new location, or installing a unit for the production of a product not currently being made by the Company.

Rate of Return

The acceptable rate of return on an expansion project will depend on the nature of the market for the product.

The minimum of 25% will be acceptable for basic or staple products for which forecasts of sales and costs can be made accurately.

The minimum of 25% will also be acceptable for an expansion which is backed up by a firm sales contract. The latter should cover a period which is at least equal to the pay-out period of the project; it should also allow for an escalation in the product's selling price based on the principal items of cost (such as raw materials, utilities, etc.); and finally, it should include a "must take" clause obligating the customer to pay a penalty sufficient to give a 15% return on total investment, if for any reasons (other than force majeure) the customer fails to take the quantities contracted for.

The return must be more than 25% for a product which is subject to seasonal or cyclical variations, used by only one consuming group, or liable to rapid technical obsolescence.

IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 340

Net Return on Shareholders' Equity

Pennsalt vs. Competition

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Sales Under $100 Million											
American Potash	9.2%	7.6%	6.1%	7.6%	10.2%	10.7%	10.7%	9.5%	7.6%	8.5%	8.4%
Atlas Chem.	10.2	7.8	7.6	8.9	9.1	11.2	12.1	11.4	7.4	9.5	7.1
Harshaw Chem.	13.7	11.4	5.1	7.1	8.9	11.8	10.6	10.0	7.4	8.4	6.1
Reichhold Chem.	NA	NA	NA	NA	NA	11.6	8.2	12.2	10.8	8.0	NA
Spencer Chem.	20.0	36.3	14.3	12.6	16.0	12.3	13.6	11.6	16.1	10.8	10.4
Wyandotte Chem.	NA	NA	NA	NA	NA	1.5	7.2	9.2	3.9	5.8	7.0
Average	13.3	15.6	8.3	9.1	11.0	9.9	10.4	10.7	8.9	8.5	7.8
Sales Over $100 Million & Under $400 Million											
Air Reduction	13.4	8.2	7.7	7.0	6.4	10.9	13.6	13.3	10.4	11.0	10.6
Diamond Alkali	7.7	14.8	8.4	8.9	8.9	11.6	13.2	8.6	7.8	12.6	11.8
Hercules Powder	18.5	17.4	13.8	13.8	15.8	19.0	15.5	14.2	12.8	12.9	14.4
Hooker Chem.	16.0	29.7	21.5	18.3	21.5	18.0	15.8	13.9	12.1	14.1	12.7
Rohm & Haas	17.9	17.7	11.1	11.6	18.5	21.4	16.7	14.2	11.9	16.4	13.4
Stauffer Chem.	—	—	22.2	22.2	26.1	21.7	17.7	15.9	15.7	13.8	11.7
Average	14.7	17.6	14.1	13.6	16.2	17.1	15.4	13.4	11.8	13.5	12.4
Sales Over $400 Million											
Allied Chem.	13.8	13.0	12.4	13.1	11.4	12.9	11.0	11.4	7.6	10.6	10.4
American Cyanamid	17.5	15.2	11.2	10.3	8.6	11.8	15.0	13.1	10.9	12.4	10.7
Dow Chem.	15.4	15.9	12.3	10.6	10.0	11.8	15.9	12.4	9.9	12.2	14.1
Du Pont	24.4	16.0	14.5	14.2	19.3	21.9	18.5	16.9	13.7	16.0	13.8
Monsanto	17.2	14.4	11.0	11.7	10.0	12.2	10.6	9.6	8.8	11.0	11.3
Olin Mathieson	15.9	11.4	6.8	12.6	15.2	13.0	12.4	9.5	9.5	10.0	8.7
Union Carbide	23.2	17.8	16.0	15.9	13.3	19.9	18.0	15.9	14.5	18.5	16.1
Average	18.2	14.8	12.0	12.6	12.5	14.8	14.5	12.7	10.6	13.0	12.2
Total Competition Average	15.9	15.9	11.9	12.1	13.5	14.0	13.5	12.3	10.4	11.7	11.0
Pennsalt	11.5	9.1	6.7	6.4	6.8	6.8	7.0	5.6	6.5	7.7	8.0

MEH:jew—5/3/61

[fol. 1392] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 349

Olin—Aluminum Division,

Olin Mathieson Chemical Corporation,

400 Park Avenue NYC 22, PLaza 1-7227

February 12, 1958.

Mr. L. M. Shanaman, Sales Manager
Heavy Chemicals Division
Pennsalt of Washington Division
Pennsalt Chemicals Corporation
2901 Taylor Way
Tacoma 2, Washington

Dear Roy:

I definitely owe you an apology and am extremely sorry to have taken so long to reply to your letter of December seventeenth. The bustle of the Christmas season was followed by a rather abrupt transfer to the Aluminum Division where I will be temporarily for the next month or so. In my absence I know that Jimmy Johns or Bill Theobald in Baltimore are carrying on the development of chlorate business and, in fact, I understand you have already received an order from us for our first car.

Although we found that most of the large users were pretty well committed for 1958, we still believe that we can reach the quantity of 500 tons during this coming year.

I enjoyed seeing you in New Orleans and I am only sorry we did not have more time to be together. If I get out to the West Coast, I will contact you but, in the meantime, if you are in the New York area, please let me know. Best regards.

Sincerely, Derek Richardson.

[fol. 1393] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 352

Pennsalt Chemicals, Established 1850

Subject: Sodium Chlorate—Wyandotte Chemicals
Date: March 12, 1959
To: Mr. Wm. P. Drake
From: F. C. Shanaman

I am returning herewith Russ Sloan's memorandum to Dr. LaLande, dated February 25, and a copy of which I had previously received.

You asked for comments and about the only thing I can say, Bill, is that Wyandotte would be a logical one to produce Sodium Chlorate because of their interest in propellents and pulp and paper. They are just as strong in this field as Columbia-Southern, Solvay, etc. You doubtless know that Columbia-Southern is building a Sodium Chlorate plant in Eastern Canada and recently I understand has made arrangements to pick up some Sodium Chlorate from American Potash to feel out the market. I also am informed this week that some of this material Columbia-Southern plans to use for testing out the market in the U.S. and which, if it happens, I presume will make Buck Frances' face very, very red, particularly since he is just getting his own plant started in Mississippi.

F. C. Shanaman

FCS/ep
att.

[fol. 1394] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 358

11/18/59.

Mr. J. G. Johns, Baltimore
J. O. Logan, Baltimore
Pennsalt—Sodium Chlorate

J. G. McMullen
O. J. Theobald
C. W. Frost

I do not know the status of our 1960 sales contracts for chlorate, but just recently discussed our program with Fred Shanaman, of Pennsalt. We have a tentative date the week of November 30th to review our future relationship. In the meantime, I think we should move slowly on a contractual position with customers.

Shanaman feels that if we are going to proceed jointly with a production unit, he could supply up to 5000 tons in 1960. However, if we are not going to proceed jointly, he would suggest a much smaller quantity, namely, around 2000-2500 tons, since their freight equalization cost is rather heavy.

Since in all probability we will not proceed with a joint production facility, we should not over-contract, at least until there is further clarification following my meeting with Shanaman.

J. O. Logan.

[fol. 1395] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 359

Olin Mathieson Chemical Corporation

December 10, 1959.

Mr. J. G. McMullen, Baltimore
JGJ:bd, Baltimore
Sodium Chlorate

C. W. Frost,
J. O. Logan,
R. R. Shively,
O. J. Theobald, Jr.

Confirming our discussions, we will limit our solicitations of third party sodium chlorate sales for Pennsalt to a maximum 2500 ton commitment for the year 1960.

We understand Roy Smart is submitting a contract to Brunswick Pulp and Paper for 1200 tons and that a commitment for 1,000 tons can be obtained from International Paper. This, together with occasional spot shipments to Hollingsworth & Whitney at Mobile and possible occasional spot shipments to Kimberly Clark at Coosa River Newsprint, would account for the tonnage we have available.

By copy of this memo I am asking Mr. Theobald to follow up and determine the status of the International Paper contract and asking Dr. Shively to be certain that the interested field sales offices are properly notified when our commitments have been closed out.

J. G. Johns.

St. Mary's Kraft

[fol. 1396] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 364

Olin Mathieson Chemical Corporation

Date: August 11, 1960.

To: Mr. W. F. O'Connell
From: J. O. Logan
Subject: Penn-Olin

Per discussion today between Pennsalt management, Mr. Osborne, Mr. Block and myself, it was agreed that we will review the technical, legal and financial aspects of the Penn-Olin project with the aim of developing a format of operation which avoids the anti-trust problem and generates maximum return. To this end, you might discuss the situation further with Dick Furland and then contact Mr. Willets of Pennsalt in Philadelphia, who will be reviewing the matter for Pennsalt.

J. O. Logan.

[fol. 1397] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 366

Olin Mathieson Chemical Corporation
CHEMICALS DIVISION
Industrial Chemicals Development Department
Niagara Falls

With Sodium Chlorate Cell With Platinized Titanium Anode

ER 136 TITLE Economic Analysis of Platinized Titanium Chlorate Cell Anodes and Pilot Plants for their Test

~~ELECTRO-CHEMICAL MONTHLY DATA REPORT FOR~~ _____
Electrochemical Quarterly Report

Name	Res. Mgr.	Suspd.	Work By	Report By
C. [illegible] Hightower				
B. [illegible] (✓)				
W. C. [illegible]	X			
(A. [illegible])			X	X
G. D. [illegible]				
J. F. [illegible]				
S L. D. [illegible]				
S G. T. [illegible]				
S ~~[illegible]~~ G J Heinrich				
S H. [illegible]				
J. R. Newberry		X		
S W. L. [illegible]				
S [illegible]				
J. L. [illegible]				
S [illegible]				
S-				
S-				
S-				
S-				
S-				
S-				
S-				

Charge No. 550-743-100-4201

Report Dated: 12/14/60

Report Type: _____

ER Cross Reference: _____

Cross Reference to Research Report System: U-2.502

4-1

Title Sodium Chlorate [illegible] with [illegible] Ammonia

ER 136 TITLE Economic Analysis of [illegible] Titanium Chlorate, [illegible] and Pilot Plants for their Test

~~ELECTRO-CHEMICAL MONTHLY DATA REPORT~~ OR _____

[illegible] Monthly Report

Name	Res. Mgr.	Supervisor	Work By	Report By
C. [illegible] Hightower				
B. [illegible] (✓)				
W. C. [illegible]	X			
(A. [illegible])			X	X
G. D. [illegible]				
J. [illegible]				
S L. D. [illegible]				
S G. [illegible]				
~~[illegible]~~ [illegible] J Henrich				
S H. [illegible]				
J. R. Newberry		X		
S W. L. [illegible]				
S [illegible]				
S [illegible]				
S [illegible]				
S-				
S-				
S-				
S-				
S-				
S-				
S-				

Charge No. 550-743-100-4201

Report Dated: 12/14/60

Report Type: _____

ER Cross Reference: _____

Cross Reference to Research Report System: U-2.502

4-1

Note: remember plant managers must be in the distribution
(J. [illegible], L. D. [illegible], G. F. Cohen, ~~[illegible]~~, W. L. Kleiber, D. [illegible], [illegible])

923

[fol. 1398]

2A

Summary

The Olin Mathieson chlorate cell employing platinized titanium anodes has not yet equalled conventional cells in cost of production. Promising leads in design, operating conditions, and platinum application remain to be explored.

Preliminary cost studies are presented for one and three cell pilot operations. Also a 36 cell

The O.S. Matthieu chlorate cell employing platinized titanium anodes has not yet equalled conventional cells in cost of production. Processing leads in design, operating conditions, and platinum application remain to be explored. Preliminary cost studies are presented for one and three cell pilot operations. Also a 36 cell conventional plant is estimated. Captive use of the chlorate makes each cell attractive.

The economic potential of platinized titanium anodes in a chlorate cell is evaluated on the basis of new information obtained in the laboratory. The platinum consumption rate varies greatly from one supplier to another. The best results to date show use of this type of electrode to give a return on investment 24% higher than that obtaining with conventional graphite anode cells in a 40T/day sodium chlorate ($NaClO_3$) plant.

Several alternatives for pilot plants to evaluate this new type cell are considered as is the possibility of using excess rectifier capacity and floor space in the new Niagara Falls chlorine plant to ~~tell~~ provide the chlorate needs of the sodium chlorite plant at Niagara.

[fol. 1400]

IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 376

Shipments of Sodium Chlorate By Domestic Commercial Producers During 1960, By Regions
(In Short Tons)

	Pennsalt Chemical Corp.[a]		Hooker Chemical Corp.		American Potash & Chemical Corp.		Total	
	Tons	Percent of Total	Tons	Percent of Total	Tons	Percent of Total	Tons	Total Percent
West of the Rockies								
California, Washington, Oregon, Idaho Nevada, Utah and Arizona	8,625.90	64.0	1,988.55	14.8	2,859.07	21.2	13,473.52	100.0
Montana, Wyoming, Colorado and New Mexico	1,815.70	39.2	719.80	15.5	2,100.30	45.3	4,635.80	100.0
Total West of the Rockies	10,441.60	57.7	2,708.35	15.0	4,959.37	27.4	18,109.32	100.0
East of the Rockies								
Oklahoma, Arkansas, Texas, Louisiana, Mississippi, Alabama, Georgia, Florida, South Carolina, Tennessee, North Carolina, Kentucky, West Virginia, Virginia	4,069.50	8.7	23,263.52	49.6	19,586.24	41.7	46,919.26	100.0
All other States East of the Rockies	684.10	4.0	11,588.04	68.6	4,627.18	27.4	16,899.32	100.0
Total East of the Rockies	4,753.60	7.4	34,851.56	54.6	24,213.42	37.9	63,818.58	100.0
Total	15,195.20	18.5	37,559.91	45.9	29,172.79	35.6	81,927.90	100.0

[a] Including shipments made for Olin Accounts.

Sources: Sodium Chlorate Data Table No. 9.
Stipulation Table No. 1 (General Stipulations Set I, PX 414 and Set II, DX 48).

927

[fol. 1401] Indexes for Sodium Chlorate and Industrial Chemicals Production

1957 = 100

Year	Production Index For Industrial Chemicals	Production Index For Sodium Chlorate	Production In Short Tons
1961			105,000 [b]
1960	127	154	91,184 [a]
1959	118	149	88,309
1958	98	114	67,249
1957	100	100	59,142
1956	95	93	55,068
1955	89	79	46,972
1954	73	68	39,952
1953	73	73	43,221
1952	64	68	40,434
1951	62	56	33,341
1950	52	37	22,085

[a] Preliminary, subject to revision.

[b] Estimated by Chemical and Engineering News, September 4, 1961, p. 119.

Source: Production Index For Industrial Chemicals is from Business Statistics 1961 Edition, U. S. Department of Commerce. Production data is from Bureau of the Census, U. S. Department of Commerce.

[fol. 1402] In United States District Court

Plaintiff's Exhibit 377

Personnel

* * * * * * *

Interrogatory No. 1

Olin Mathieson Chemical Corp. Answer

1. State the name, position and business address of each person who is an officer, director or supervisory employee of Penn-Olin Chemical Company. For each such person, state all positions (a) currently held and (b) held within the past five years as officer, director or employee of Olin Mathieson Chemical Corporation or Pennsalt Chemicals Corporation, and describe the duties of each.

1. The name, position and business address of each officer and director of Penn-Olin Chemical Company are as follows:

James McWhirter, President and Director
W. Alfred LaLande, Jr., Director
Albert H. Clem, Director
W. Cooper Willits, Treasurer and Director
Pennsalt Chemicals Corporation
Three Penn Center Plaza
Philadelphia 2, Pennsylvania
Albert E. Clement, Director
Pennsalt Chemicals Corporation
Calvert City, Kentucky
J. O. Logan, Vice President and Director
C. L. Williamson, Secretary and Director
J. G. Johns, Director
J. L. Wood, Director
Olin Mathieson Chemical Corporation
10 Light Street
Baltimore 3, Maryland
Russell Hopkinson, Director
Olin Mathieson Chemical Corporation
460 Park Avenue
New York 22, New York

[fol. 1403] The positions as an officer, director or employee of Olin Mathieson held currently and within the past five years by any of the foregoing and the duties of such persons in such positions are as follows:

J. O. Logan:

January, 1956—June, 1958. General Manager, Industrial Chemicals Division. Responsible for the operations of the Division, reporting to the corporate Vice President in charge.

June, 1958—September, 1959. Vice President and Director of Marketing, Chemicals Division. Responsible to the Senior Vice President and General Manager of the Chemicals Division (the consolidation of the former Agricultural, Blockson, Organic, and Industrial Chemicals Divisions) for marketing efforts and policies connected therewith.

October, 1959—January, 1961. Vice President and Associate General Manager, Chemicals Division. Responsible, [fol. 1404] under the Senior Vice President in charge of the Division, for all facets of the operations of the Division.

January, 1961 to date. Vice President and General Manager of the Chemicals Division. Responsible for all facets of the operations of the Division.

C. L. Williamson:

January, 1956—July, 1956. Budget Manager, Industrial Chemicals Division. Responsible for the coordination, format, and assembly of the various budgets of the Division.

August, 1956—June, 1957. Manager, Administrative Services, Industrial Chemicals Division. Responsible for administrative supervision of all staff services of the Division.

July, 1958—October, 1960. Assistant to the Vice President and General Manager, Industrial Chemicals (and Chemicals) Division. Responsible for tasks as assigned, [fol. 1405] primarily of an administrative nature pertaining to detailed matters not covered by any of the major line functions.

November, 1960 to date. Manager, Special Projects, Chemicals Division. Responsible for investigations and evaluations as well as certain coordinating efforts as designed or assigned by the General Manager of the Division.

J. G. Johns:

January, 1956—December, 1957. Assistant District Manager and District Sales Manager, Philadelphia, Industrial Chemicals Division. Responsible for sales of industrial chemical products in the Philadelphia geographical territory and supervision of salesmen and sales staff attached to the Philadelphia District Office.

January, 1958—September, 1958. Assistant Manager, Field Sales-Industrial Chemicals Division. Assisting Field [fol. 1406] Sales Manager in directing the activities of the Industrial Chemicals Field Sales Force.

October, 1958—September, 1959. New York District Sales Manager, (Industrial) Chemicals Division. Respon-

sible for sales of industrial chemical products in the New York geographical territory and supervision of salesmen and sales staff attached to the New York District Office.

October, 1959 to date. General Sales Manager, Heavy Chemicals (Industrial) Chemicals Division. Responsible to the Associate General Manager and General Manager of Chemicals Division for the sales volume and sales policy of heavy industrial chemicals produced and marketed by the Chemicals Division.

J. L. Wood:

January, 1956—December, 1957. Operations Manager, McIntosh, Alabama, plant. Plant Manager of alkali chlorine plant with facilities to produce some by-products.

[fol. 1407] January, 1958 to date. Electrochemical Engineer, Chemicals Division. Design, location and construction for new plants in the electrochemical field, and responsibilities as to operating problems in the electrochemical plants and to problems in barging of products.

Russell Hopkinson:

January, 1956—January, 1957. Vice President for Development. Evaluation and acquisition of new products, processes and commercial activities.

January, 1957—June, 1958. Executive Vice President. Responsible for all activities of Hydrocarbon Chemicals Division.

June, 1958—August, 1960. Vice President, Commercial Development. Assisting divisions in developing new products, processes and raw materials sources.

September, 1960 to date. Vice President, Senior Advisor. Consulting and advising President and Staff relating to operations.

[fol. 1408] Interrogatory No. 5

Olin Mathieson Chemical Corp. Answer

5. State the name, position and business address of each officer, director, employee and agent of Olin Mathieson who participated in the negotiations with Pennsalt concerning the joint venture, and describe their activities.

5. The names, positions and business addresses of Olin Mathieson personnel who participated in the negotiations with Pennsalt are as follows:

S. de J. Osborne, President
W. F. O'Connell, Vice President, Finance
Olin Mathieson Chemical Corporation
460 Park Avenue
New York 22, New York
Edward Block, Senior Vice President and General Manager, Chemicals Division
J. O. Logan, Vice President and Associate General Manager, Chemicals Division
J. L. Wood, Electrochemical Engineer, Chemicals Division
J. G. Johns, General Sales Manager, Heavy Chemicals, (Industrial) Chemicals Division
C. L. Williamson, Assistant to the Vice President and Associate General Manager, Chemicals Division
Olin Mathieson Chemicals Corporation
10 Light Street
Baltimore 3, Maryland

Mr. Osborne was responsible for the final decision to proceed with the project. Mr. O'Connell participated only to the extent of obtaining financing for Penn-Olin. Mr. Block was the person in Olin Mathieson primarily responsible for the progress of the negotiations and for determining the [fol. 1409] relative merits of the undertaking. Mr. Logan assisted Mr. Block and, after Mr. Block's death in January, 1961, assumed his responsibilities. Mr. Wood was responsible for technical evaluations and Mr. Johns for sales evaluations. Mr. Williamson acted as coordinator.

[fol. 1410] **Interrogatory No. 66**

Olin Mathieson Chemical Corp. Answer

Int. 66. Describe with particularity the duties and responsibilities of each of the Olin officers or employees listed in column A as they relate to the production and the pricing, advertising, selling and other marketing functions performed by the Olin organization in relation to each of the chemicals listed in column B:

A	B
John O. Logan	sodium chlorate
C. L. Williamson	calcium hypochlorite
J. G. Johns	hydrofluoric acid
J. L. Wood	chlorine
Russell Hopkinson	caustic soda
	ammonia

Ans. 66. John O. Logan, as Vice President and General Manager of the Chemicals Division, has ultimate responsibility for the production and marketing of each of the chemicals listed in column B. C. L. Williamson, as Assistant to the Vice President and General Manager of the Chemicals Division, has no direct responsibilities relating to any of the chemicals listed in column B. J. G. Johns, as Director of Marketing, Industrial Chemicals, Chemicals Division, has supervisory responsibility for the pricing, advertising, selling and other marketing functions in connection with sodium chlorate, chlorine, caustic soda, calcium hypochlorite and ammonia. J. L. Wood has no direct duties or responsibilities in any of the areas listed in any of the chemicals listed, except that he does from time to time advise on problems concerning the production of chlorine and caustic soda. Russell Hopkinson, who is Vice President, Senior Adviser, of the Corporation and a member of the Capital Appropria-[fol. 1411] tions Request Committee, does not have any responsibilities or duties in connection with the chemicals listed in column B, except that he is a member of the Board of Directors of Penn-Olin Chemical Company.

(Page 2 of Interrogatory Ans. 66.)

[fol. 1412] Interrogatory No. 1

Pennsalt Chemicals Corporation Answer

1. State the name, position and business address of each person who is an officer, director or supervisory employee of Penn-Olin Chemical Company. For each such person, state all positions (a) currently held and (b) held within the past five years as officer, director or employee of Pennsalt Chemicals Corporation or Olin Mathieson Chemical Corporation, and describe the duties of each.

1. *James McWhirter,* Three Penn Center, Philadelphia 2, Pennsylvania, President and Director of Penn-Olin Chemical Company.

(a) General Manager of Industrial Chemicals Division East, Pennsalt Chemicals Corporation. Duties: Responsible for Industrial Chemicals Division East.

(b) Formerly Manager of Manufacturing, Industrial Chemicals Division East and Director of Personnel of Pennsalt.

W. Cooper Willits, Three Penn Center, Philadelphia 2, Pennsylvania, Treasurer and Director of Penn-Olin.

(a) Treasurer of Pennsalt. Duties: Responsible for Financial Division and recommends financial policy to President of Pennsalt.

(b) Formerly Assistant to the President of Pennsalt.

Albert H. Clem, Three Penn Center, Philadelphia 2, Pennsylvania, Director of Penn-Olin.

[fol. 1413] (a) Vice President, Marketing of Pennsalt. Duties: Responsible for marketing policies.

(b) Formerly General Manager, Chemical Specialties Division of Pennsalt.

W. A. LaLande, Jr., Three Penn Center, Philadelphia 2, Pennsylvania, Director of Penn-Olin.

(a) Vice President and Technical Director of Pennsalt. Duties: Responsible for research, patents, product development and Central Engineering Department.

(b) No former position.

Albert E. Clement, Calvert City, Kentucky, Director of Penn-Olin.

(a) Area Manager, Calvert City Plant, of Pennsalt. Duties: Responsible for operations at Calvert City plant.

(b) No former position.

The position and duties of *J. G. Johns, John O. Logan, Cecil L. Williamson, J. L. Wood* and *Russell Hopkinson* will be answered by Olin Mathieson Chemical Corporation.

[fol. 1414] Interrogatory No. 5

Pennsalt Chemicals Corporation Answer

5. State the name, position and business address of each officer, director, employee and agent of Pennsalt who participated in the negotiations with Olin Mathieson concerning the joint venture, and describe their activities.

5. *William P. Drake,* President, Three Penn Center, Philadelphia, Pennsylvania. Activities: over-all planning of the joint venture.

Albert H. Clem, Vice President, Marketing, Three Penn Center, Philadelphia, Pennsylvania. Activities: marketing aspects of the joint venture.

W. Cooper Willits, Treasurer, Three Penn Center, Philadelphia, Pennsylvania. Activities: financial aspects of the joint venture.

James McWhirter, General Manager of Industrial Chemicals Division East, Three Penn Center, Philadelphia, Pennsylvania. Activities: production and operation aspects of the joint venture.

[fol. 1415] Interrogatory No. 47

Pennsalt Chemicals Corporation Answer

Int. 47. Describe with particularity the duties and responsibilities of each of the Pennsalt officers or employees listed in column A as they relate to the production and the pricing, advertising, selling and other marketing functions performed by the Pennsalt organization in relation to each of the chemicals listed in column B:

A	B
James McWhirter	sodium chlorate calcium hypochlorite
Albert H. Clem	hydrofluoric acid
W. Cooper Willits	chlorine
W. A. LaLande, Jr.	caustic soda
Albert E. Clement	ammonia

Ans. 47. *James McWhirter* is Corporate Vice President and General Manager of the Industrial Chemicals Division East. Mr. McWhirter has over-all responsibility for (a) marketing any sodium chlorate made available to the Industrial Chemicals Division East; (b) production of calcium hypochlorite; and (c) production, pricing, selling and marketing hydrofluoric acid, chlorine, caustic soda and ammonia.

Albert H. Clem is Vice President of Marketing. He is responsible for the marketing policy relating to the six chemicals listed.

W. Cooper Willits is Treasurer. He has none of the enumerated responsibilities.

W. A. LaLande, Jr. is Vice President-Technical Director. He has none of the enumerated responsibilities.

Albert E. Clement is Area Manager, Southern Plants, Industrial Chemicals Division East. He is responsible for production of hydrofluoric acid and for chlorine and caustic soda produced at Calvert City, Kentucky.

[fol. 1416] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 378

Interrogatory No. 8

Olin Mathieson Chemical Corp. Answer

Int. 8. State the name and business address of (a) each current licensee under Olin Mathieson's process for generating chlorine dioxide, and (b) each person or company that held or applied for such a license within the past five years, indicating the date and term of each license granted and the date of each unsuccessful application.

Ans. 8. Set forth below is the name and address of each domestic plant which is currently using the Olin Mathieson process for the generation of chlorine dioxide from sodium chlorate. Organizations or plants marked with a "(X)" are those which Olin Mathieson believes have installed the process within the past five years. Olin Mathieson believes that this list is complete, although it is possible that other organizations or other plants of the same organizations may be using the process, or that an organization on this list is no longer using it.

American Can Co. (X)
Marathon Division
Naheola, Ala.

Bowaters Carolina (X)
Catawba, S. C.

Brunswick Pulp & Paper (X)
Brunswick, Ga.

Buckeye Cellulose Corp.
Foley, Fla.

Champion Paper & Fiber
Canton, N. C.

Champion Paper & Fiber
Pasadena, Texas

Container Corp. of America (X)
Brewton, Ala.

Continental Can Corp. (X)
Robert Gair Div.
S. Augusta, Ga.

Coosa River Newsprint Co.
Coosa Pines, Ala.

Crossett Paper Mills
Crossett, Ark.

Crown Zellerbach Corp. (X)
Camas, Washington

Crown Zellerback Corp. (X)
Gaylord Container Div.
Bogalusa, La.

East Texas Pulp & Paper Co.
Evadale, Texas

[fol. 1417]

Gulf States Paper Corp. (X)
Demopolis, Ala.
International Paper Co.
Bastrop, La.
International Paper Co. (X)
Georgetown, S. C.
International Paper Co.
Mobile, Ala.
International Paper Co.
Moss Point, Miss.
International Paper Co.
Natchez, Miss.
International Paper Co.
Spring Hill, La.
Rayonier, Inc.
Hoquiam, Wash.
Rayonier, Inc.
Port Angeles, Wash.
Scott Paper Co. (X)
H. & W. Division
Mobile, Ala.
St. Regis Paper Co. (X)
Pensacola, Fla.
Waldorf Paper Products (X)
Missoula, Mont.
West Va. Pulp & Paper
Covington, Va.
West Va. Pulp & Paper (X)
Luke, Md.
Weyerhaeuser Timber Co. (X)
Longview, Wash.
Weyerhaeuser Timber Co. (X)
Everett, Wash.

During the past five years, Olin Mathieson has not entered into any formal license arrangement with any domestic person or organization with respect to Olin Mathieson's process for generating chlorine dioxide from sodium chlorate, nor has Olin Mathieson turned down any application for such license. It has been Olin Mathieson's policy to make the process available on a royalty-free basis to any plant desiring to use it. If an inquiry as to the process is received, the person or organization inquiring is referred to equipment manufacturers who are able to construct the necessary apparatus. In addition, engineering personnel of Olin Mathieson may be called upon to assist in determining whether or not the process would be appropriate for the particular plant concerned and to assist with the engineering and installation of the apparatus.

(Page 2 of Interrogatory No. 8 Answer)

[fol. 1418] Interrogatory No. 52

Olin Mathieson Chemical Corp. Answer

Int. 52. State (a) the name and business address of each owner or licensor of a chlorine dioxide generation process competitive with Olin's and (b) the name, business address and chlorine dioxide plant location of each company which, to Olin's knowledge, information or belief, currently uses any such competitive process.

Ans. 52. (a) The name and business address of each domestic owner or licensor of a chlorine dioxide generation process other than Olin (and the name of such other process) are as follows:

Owner (and Licensor)	Process
Allied Chemical Corporation 61 Broadway New York 6, N. Y.	Solvay
Brown Paper Company Berlin, New Hampshire	Day-Kesting
Hooker Chemical Corporation 1200 47th Street Niagara Falls, N. Y.	Rapson R-2

(b) The name, business address and chlorine dioxide plant location of each domestic company which uses those competitive processes (and the name of the process used) are as follows:

Company	Plant Location	Process
Brown Paper Company Berlin, N. H.	Berlin, N. H.	Day Kesting
Glatfelter Company, P. H. Spring Grove, Pa.	Spring Grove, Pa.	Solvay
Hudson Pulp & Paper Company New York, N. Y.	Palatka, Fla.	Solvay
International Paper Company New York, N. Y.	Pine Bluff, Ark., Spring Hill, La. Ticonderoga, N. Y.	Solvay Rapson R-2 Solvay
Mead Corporation, The Dayton, Ohio	Chillicothe, Ohio	Solvay
Nekoosa-Edwards Paper Co. Port Edwards, Wisc.	Nekoosa, Wisc.	Solvay

[fol. 1419]

Oxford Paper Company New York, N. Y.	Rumford, Maine	Solvay
Packaging Corp. of America Grand Rapids, Mich.	Filer City, Mich.	Solvay
Penobscot Chemical Fibre Co. Great Works, Maine	Great Works, Maine	Solvay

Company	Plant Location	Process
Potlatch Forest, Inc. Lewiston, Idaho	Potlatch, Idaho	Solvay
Puget Sound Pulp & Paper Co. Bellingham, Wash.	Bellingham, Wash.	Solvay
Rayonier, Inc., New York, N. Y.	Fernandina Beach, Fla.	Solvay
	Jesup, Ga.	Solvay
Riegel Paper Corporation New York, N. Y.	Acme, N. C.	Solvay
St. Marys Kraft Company New York, N. Y.	St. Marys, Ga.	Solvay
St. Regis Paper Company New York, N. Y.	Pensacola, Fla.	Rapson R-2
Standard Packaging Corp. (Eastern Fine Paper and Pulp Div.) New York, N. Y.	Lincoln, Mo.	Solvay
Union Bag-Camp Corporation Franklin, Va.	Franklin, Va.	Rapson R-2
West Va. Pulp & Paper Co. New York, N. Y.	Tyrone, Pa.	Solvay

[fol. 1420] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 379

Interrogatory No. 16

Pennsalt Chemicals Corporation and Penn-Olin Chemical Company Answers

16. State the respects in which the allegations of the third sentence of paragraph 14 of the complaint are "denied as stated." Indicate the respects in which allegations therein are admitted, admitted in part, denied or not presently known.

16. (Pennsalt) As stated in its answer to the complaint, Pennsalt a) admits that the raw materials for Penn-Olin's production are found in large part outside Kentucky; b) denies as stated the allegation as to Penn-Olin's "chemical products" because it is intended that Penn-Olin will only produce one chemical product, sodium chlorate, and c) admits that Penn-Olin's production of sodium chlorate is destined for sale to customers located principally in the Southeastern United States.

16. (Penn-Olin) As stated in its answer to the complaint, Penn-Olin a) admits that the raw materials for its production are found in large part outside Kentucky; b) denies as

stated the allegation as to its "chemical products" because it only intends to produce one chemical product, sodium chlorate, and c) admits that its production of sodium chlorate is destined for sale to customers located principally in the Southeastern United States.

[fol. 1421] Interrogatory No. 45

Pennsalt Chemicals Corporation Answer

Int. 45. Describe the respects, if any, in which Penn-Olin is treated by Pennsalt in a manner different than subsidiaries or other subsidiaries of Pennsalt, for accounting, tax, corporate organization and other purposes.

Ans. 45. Penn-Olin is treated differently from other Pennsalt subsidiaries for accounting and tax purposes as occasioned by the fact that Penn-Olin is 50% owned by Pennsalt. Wholly owned domestic manufacturing subsidiaries of Pennsalt are consolidated in the preparation of financial statements, so that Pennsalt's investment in such companies is eliminated, and the assets, liabilities and earnings of the subsidiary companies are combined with those of Pennsalt. In the case of Penn-Olin, as would be the case with any subsidiary where only a 50% ownership exists, the investment is shown in the consolidated statements as an asset, with the underlying equity noted in the Notes to Financial Statements.

[fol. 1422] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 382

Interrogatory No. 82

Pennsalt Chemicals Corporation Answer

82. State (a) the sodium chlorate productive capacity of Pennsalt's Portland, Oregon plant as of the date that plant commenced operations, and (b) the amount and date of each change therein to the present time.

Ans. 82.

October 1941 (original plant)	2,194 tons per year
October 1942	3,448 "
January 1943	4,248 "
December 1949	5,448 "
February 1954	7,848 "
October 1957	12,392 "
October 1959	15,392 "

[fol. 1423] IN UNITED STATES DISTRICT COURT.

PLAINTIFF'S EXHIBIT 385

Pennsalt's Sales in the Southeast

Pennsalt Interrogatory 84

[fol. 1424] Interrogatory No. 84

Pennsalt Chemicals Corporation Answer

84. State for the years 1959 and 1960 the total dollar sales in the sixteen southeastern states area design--ed in defendant's answer to Plaintiff's Interrogatory 12 (Set II).

a. of chlorine, caustic soda, calcium hypochlorite, hydrofluoric acid and ammonia, individually.

b. of all Pennsalt products, considered collectively, sold in those states.

84. See Exhibit A.

[fol. 1425]

Sales in Southeastern States

Exhibit A

Year 1959	Chlorine	Caustic Soda	Calcium Hypochlorite	Hydrofluoric Acid	Anhydrous Ammonia	Aqueous Ammonia	All Products Combined
Texas	—	17,793		27,228	—	—	4,112,104
Louisiana		83,614		—	—	—	1,196,739
Kentucky	2,284,962	172,705		1,290,937	492,930	—	6,665,422
Florida	—	13,628		49,480	18,647	—	1,019,535
Georgia	—	21,880	Not	2,219	—	—	874,143
North Carolina	6,820	74,509	Available	61,190	—	3,851	996,926
South Carolina	298	437,988		2,905	—	—	1,094,662
Virginia	3,112	25,375		—	18,083	—	938,395
West Virginia	35,273	15,816		15,404	57,182	—	2,820,932
Alabama	20,880	109,953		701	—	—	889,507
Mississippi	17,802	—		—	—	—	268,868
Arkansas	—	—		—	—	—	121,923
Kansas	—	837		36,960	—	—	328,843
Missouri	90,776	442,537		668,614	—	—	2,820,336
Tennessee	—	92,636		13,030	—	—	1,047,144
Oklahoma	—	—		131,186	13,948	—	635,904

[fol. 1426]

Texas	—	(501)	203,740	21,863	—	—	3,594,854
Louisiana	—	(957)	58,638	1,026	—	—	1,138,053
Kentucky	2,987,475	133,476	26,901	1,624,650	459,380	—	6,602,750
Florida	—	11,023	83,825	53,739	—	—	1,108,691
Georgia	—	96,874	44,155	—	—	—	1,268,933
North Carolina	20,157	29,935	63,037	49,985	—	1,536	866,694
South Carolina	121	428,509	7,436		—	—	1,134,751
Virginia	7,961	102,898	61,802	428	7,613	—	910,039
West Virginia	11,948	17,600	7,066	—	51,459	—	2,878,620
Alabama	—	63,107	31,635	685	—	—	1,233,278
Mississippi	6,463	1,516	27,657	—	—	—	518,912
Arkansas	—	18,355	7,129	—	—	—	299,158
Kansas	—	497	7,419	47,248	—	—	386,266
Missouri	59,735	201,925	64,962	130,621	—	—	1,851,313
Tennessee	—	183,173	74,519	21,536	—	—	1,102,913
Oklahoma	—	—	38,806	99,793	28,855	—	685,784

[fol. 1427] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 386

Interrogatory No. 76

Olin Mathieson Chemical Corp. Answer

Int. 76. State the name and address of each salesman who first contacted each of the following companies to solicit or otherwise discuss the sales of sodium chlorate listed on (a) the document labelled "Penn-Olin C 55" and entitled "Penn-Olin Chemical Company Sodium Chlorate Sales and Earnings, January 1961" and (b) the document labelled "Penn-Olin C 56" entitled "Penn-Olin Chemical Company Sales and Earnings, February 1961", and give the date of each such solicitation or discussion:

(i) International Paper Co.
(ii) Brunswick Pulp & Paper Co.
(iii) West Virginia Pulp & Paper Co.
(iv) St. Mary's Kraft Corp.
(v) Scott Paper Co.

Ans. 76. The sales of sodium chlorate reflected on documents labeled "Penn-Olin C 55" and "Penn-Olin C 56" (a) were effected on the dates indicated (b) as the result of solicitations made by the salesmen named:

International Paper Co.

(a) December 27, 1960
(b) D. W. Drummond, J. G. Johns, H. P. Smith, G. H. Nusloch, J. M. Naughton and W. A. Stone

Brunswick Pulp & Paper Co.

(a) December 15, 1960
(b) D. W. Drummond, J. F. Carey, J. O. Logan and E. T. Hanna

West Virginia Pulp & Paper Co.

(a) December 22, 1960
(b) H. P. Smith, E. H. Millard, R. L. Moser and A. M. Faires

[fol. 1428] St. Marys Kraft Co.

(a) November 3, 1960
(b) H. P. Smith

Scott Paper Co.

(a) November 30, 1960
(b) E. H. Millard, J. U. Walker, G. H. Nusloch and W. A. Stone

(Page 2 of Interrogatory Ans. 76)

[fol. 1429] In United States District Court

Plaintiff's Exhibit 387

Sodium Chlorate Purchased from Pennsalt and Consumed by Olin

Olin Interrogatory 13

[fol. 1430] Interrogatory No. 13

Olin Mathieson Chemical Corp. Answer

13. With respect to defendant's answer to paragraph 11 of the complaint that "substantially all of the sodium chlorate it has purchased from Pennsalt" has been resold, state the extent to which such sodium chlorate has not been resold since 1958 and indicate the use or uses to which such difference has been put.

13. The only sodium chlorate purchased from Pennsalt by Olin Mathieson since 1958 and not resold by Olin Mathieson was used by Olin Mathieson as a raw material in the production of a cotton defoliant, chemically magnesium chlorate. None was used for the purpose in 1958, but in 1959 94,000 pounds and in 1960 50,000 pounds were so used.

[fol. 1431] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 389

Interrogatory No. 80

Olin Mathieson Chemical Corp. Answer

Int. 80. State whether since January 1, 1956 Olin has embarked on any new capital investment venture in which Olin had not theretofore engaged in "process development up through semi-commercial operations." See Logan Deposition, June 1, 1961, page 175. Describe briefly the nature of each project, the products involved and the amount of investment made.

Ans. 80. Since January 1, 1956, Olin has embarked on the following new capital investment projects in inorganic chemicals in which Olin had not theretofore engaged in "process development up through semi-commercial operations":

(1) Omset: this is a product used in making textile materials wrinkle free during washing. $118,302 was invested, but the project has been abandoned.

(2) Chlorocyanurates: this project is to produce several chlorocyanurates for use in water purification and other uses to be developed. It is still in the engineering stage and is estimated to require an investment of $2,000,000.00.

[fol. 1432] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 391

Interrogatory No. 27

Pennsalt Chemicals Corporation Answer

Int. 27. State the name and address of each of your company's principal competitors in calcium hypochlorite and hydrofluoric acid.

Ans. 27. Hydrofluoric Acid

Allied Chemicals Corporation, 40 Rector Street, New York; Stauffer Chemical Company, 380 Madison Avenue, New York; Olin Mathieson Chemical Corporation, 460 Park Avenue, New York; Harshaw Chemical Company, 1945 East 97th Street, Cleveland, Ohio.

Calcium Hypochlorite

Olin Mathieson Chemical Corporation, 460 Park Avenue, New York; Pittsburgh Plate Glass Company, 1 Gateway Center, Pittsburgh, Pennsylvania.

[fol. 1433] IN UNITED STATES DISTRICT COURT

Washington, D. C.

EXCERPTS FROM DEPOSITION OF WILLIAM P. DRAKE TAKEN ON AUGUST 1, 1961

* * * * * * *

[fol. 1434] WILLIAM P. DRAKE was called for examination for the plaintiff The United States of America and, having been first duly sworn by the Notary, was examined and testified as follows:

EXAMINATION ON BEHALF OF THE PLAINTIFF THE UNITED STATES OF AMERICA

By Mr. Freed:

Q. Would you state your name and address for the record, please?

A. William P. Drake, home address, Buttonwood Road, B-u-t-t-o-n-w-o-o-d, Berwyn, B-e-r-w-y-n, Pennsylvania.

Q. Mr. Drake, how long have you been President of Pennsalt Chemicals Corporation?

A. Since July 1st, 1955.

Q. How long before then does your service with Pennsalt, Pennsylvania Salt Manufacturing Company go back?

A. To April 9th, 1934.

Q. Could you give us a brief sketch of the various responsibilities or positions that you held prior to the Presidency?

A. I started in as a student trainee working in the plants and other sections of the Company, and in about 1937 I was assigned to the Sales Department to introduce a new product which fortunately was successful and resulted in the creation of a new department, which was known then as the Pennsalt Cleaners Department. Subsequent to that the [fol. 1435] Department was enlarged to form what was then known as the Chemical Specialties department, and I

was head of that until about 1948 when I was made Assistant Vice President. In 1949, when the then Vice President in charge of sales—we then having the organization pattern of President, Vice President, Sales Vice President, Manufacturing, Finance—that Vice President of Sales was made President in '49 at which time I became Vice President in charge of sales. In 1954 the Company changed its organizational pattern into divisions, operating divisions; for a very brief period I was General Manager of the Chemical Specialties Division, then, due to necessity of making some rather prompt changes in organization, I then became General Manager of the Industrial Chemicals Division, or I was going to say for a few minutes. In 1955 in February I was made Executive Vice President and in July President.

Q. Mr. Drake, at the time the government filed the present litigation, a press release was issued over the name of your Company which stated in part, "For many years the firm said joint ventures similar to Penn-Olin have been a standard and accepted method of developing new products, new markets, and increasing competition."

I wonder if you could tell us, with reference to the statement and to the thinking that lay behind it, what new [fol. 1436] products, new markets and increased competition were developed or furthered by the creation of Penn-Olin Chemical Company?

A. Repeat the last part of that question, if you will, please, where you start, "I wonder if you would tell me . . ."

(The reporter read the question.)

A. First of all, of course there is no new product introduced. As far as the new market was concerned in terms of Pennsalt, as you already know, I am sure, we had done very little in the southeastern area and in the marketing of chlorate for very obvious reasons. The competition that it created was the introduction of a new producer in the southeastern area.

Q. Would you state, sir, what the very obvious reasons were that had led Pennsalt to do very little in the southeast with chlorates?

A. Yes, indeed. We, as you know, have been producing chlorates in the northwest for some time in a plant where, during most of the time, the demand for the output of that plant was sufficiently great to take up virtually all, if not all, of the production. When that is true, as it was, the natural thing is for you to continue to sell within the area where you don't have the freight absorption that you would have in an area much further away, as was the case in the southeast. So that was, I think, the particular reason for [fol. 1437] our staying in the northwest with our chlorate sales. It was more profitable to do so.

* * * * * * *

[fol. 1438] By Mr. Freed:

Q. Mr. Drake, with reference to your testimony concerning the "increase in competition" portion of the press release, I believe you stated that Penn-Olin did introduce a new producer into this area. Is it not a fact, however, sir, that both Olin and Pennsalt had been engaged in selling sodium chlorate in substantial quantities in the southeastern United States, at least since 1958?

A. First I would answer that by saying I do not feel that Pennsalt had sold chlorates in the southeast in substantial quantities. To my knowledge that would not be, we wouldn't consider it substantial. The extent to which Olin Mathieson sold is unknown to me, frankly. I don't know what their volume of sales was during that period.

Q. Turning back then, if we might, to the commencement of Pennsalt's interest in sodium chlorate, I wonder if you [fol. 1439] can tell us what the scope of Pennsalt's business in sodium chlorate on the west coast was from the time it commenced it in 1941 until the time that you and Mr. Logan first began to talk about chlorine dioxide?

A. If I understand what you mean by "the scope", and please correct me if I don't, our initial interest in the northwest, as I have had it passed on to me, was two-fold; one, the possibility—well, first, the agricultural field of which, incidentally, our then head of the Pennsalt Washington Division, Mr. Shanaman, was very keenly interested, and I would imagine that that triggered our interest more than anything else in chlorates at the time. Then there was also

the anticipated growth of the need for a superior bleaching operation for the pulp paper industry. We have been suppliers to the pulp and paper industry in the northwest for some years, had been prior to 1941. I think that is the best answer I can give you as to the scope of our interest at that time, if I understand your question correctly.

Q. When you referred to Pennsalt's role as a supplier to the pulp and paper industry in the northwest, are you referring to the sale of chemicals other than sodium chlorate in substantial quantities to these companies?

A. Yes, yes. I'm speaking largely of chlorine and caustic soda.

[fol. 1440] Q. Does the Pennsalt western operation today continue to have pulp and paper companies among its leading customers?

A. Yes.

Q. Could you give us any approximation of the proportion of your western business that goes to pulp and paper companies?

Mr. DeLone: You mean western sodium chlorate business or all business?

Mr. Freed: All Pennsalt west.

The Witness: To answer that accurately or clearly I would have to differentiate between the two divisions which we have in the northwest; one is industrial chemicals which we call Industrial Chemicals West, and the agricultural chemicals. Of the Industrial Chemicals West, a very substantial part of our business is with the pulp and paper industry.

By Mr. Freed:

Q. Out of the approximately $90 million sales that your Company had in the past year, what portion is represented by Pennsalt in the west?

A. This is a rough figure, I would say approximately 20 per cent. That's a best guesstimate.

* * * * * * * *

[fol. 1441] By Mr. Freed:

. . . . . .

Q. What started the chlorine dioxide talks? Who contacted who and what were the circumstances?

A. As I recall it, our interest in chlorine dioxide started largely as a result of an indication which was conveyed to me by Mr. Shanaman, that the Solvay Process Division of Allied Chemical, who were then beginning to introduce sodium chlorate, had what I understand was a similar process which they were beginning to use in the northwest to help them in their sale of sodium chlorate. As I recall it they weren't manufacturing this but were re-selling. Mr. Shanaman felt that inasmuch as Mathieson had a similar process for the generation of chlorine dioxide from sodium chlorate, it should help him, Fred Shanaman, in the sale of sodium chlorate to the pulp and paper industry in the [fol. 1442] northwest, if he could have access to a similar process to offer to the pulp and paper industry. And that stimulated the suggestion that we contact Olin Mathieson, or Mathieson as it was then, to see if they would make available to us their process on the generation of chlorine dioxide from chlorate.

Q. Then the initial contact was made by you to Mr. Logan at the suggestion of Mr. Shanaman?

A. I think that's correct. I'm a little hazy on it, frankly. Whether actually Fred talked with John and then later on asked me to follow up on it I really don't recall.

Q. There is correspondence in the file which indicates that you and Mr. Logan discussed the matter at Sea View in May of 1953. In your recollection would that have been the first contact that was made, or does that not help your recollection?

A. It could be but I certainly couldn't swear to it.

Q. Prior to your discussions with Mr. Logan about chlorine dioxide, had Olin and Pennsalt been engaged in any other licensing agreements of this kind? In other words, was this contact the first of its character between the companies or was there already some background for Pennsalt and Olin to discuss a matter of mutual interest of this kind?

A. To my knowledge there were none before that.

Q. What was the particular objective that Pennsalt had [fol. 1443] in mind in seeking a license from Mathieson?

Mr. DeLone: I object to that. It seems to me it has already been covered.

By Mr. Freed:

Q. In particular, was there a patent infringement problem that you were concerned with?

A. No, I don't think so. I think it was more a, shall we say, a sales gimmick than any, what you term, a patent infringement problem. I am sure that probably the mills would feel easier if they had the process as a licensee from Mathieson than if they didn't. I think it has been proven subsequent to that time that the Mathieson process isn't in a strong patent position, if my memory serves me correctly.

Q. Mr. Drake, there is a series of correspondence which has already been furnished to the government by the defendants in this case relating to chlorine dioxide, and there is one particular letter in which there is a handwritten note we have been unable to deciper. I wonder if I could have the reporter mark this document as Plaintiff's Drake Exhibit 1. It is a letter from Mr. Logan to you dated May 25, 1953.

(The document referred to was marked Plaintiff's Drake Exhibit No. 1.)

I just wonder if you could interpret this for us, the writing that appears at the top of that letter.

A. No wonder you asked for a little interpretation [fol. 1444] It's: "Logan here will prepare proposed agreement on chlorine dioxide and send to me before S 12", that's Fred Shanaman, "leaves for west coast."

Q. Thank you, sir.

A. I don't wonder, however, that you couldn't read it.

Q. Without going through each of the items of correspondence that preceded the execution of the agreement, I wonder if you could tell us what the negotiating problems were that you and Mr. Logan faced. What was Pennsalt concerned with in the negotiations, and what were Olin's concerns?

A. Very frankly, I never felt that they were very, what you would call, serious negotiations. I think we asked them if they would be interested in licensing us, outlining why we wanted it, as I have already explained to you, and what did they feel was a reasonable figure, dollar-wise, and as you can see it was a nominal figure which was satisfactory to us. And frankly, the only real problem was to get the lawyers to put the words the way the two sets of lawyers could agree on.

Q. Was Olin's granting of a license to Pennsalt at this time considered to be something of minor value to each company?

A. Oh, yes.

Q. Then the 50 cent a ton payment which was required [fol. 1445] by Pennsalt to Olin was a true measure of the value that Olin then placed on what it was conveying to Pennsalt?

A. I obviously can't determine what Olin really thought, but I think the evidence would indicate that it was a true value. Otherwise they wouldn't have put it in there.

Q. In terms of the prospective sales which the agreement would enable you to make, I believe you testified that this would be a valuable sales gimmick, and I wonder whether the anticipated value to Pennsalt was in any way counterbalanced by expectations that Mr. Logan voiced to you about the value that would flow back to Olin from the agreement?

A. Let me see if I understand what you mean. Do you want to rephrase that?

Q. I believe you testified that Pennsalt considered this a valuable sales promotion tool, prospectively valuable. Presumably the sales would run into many thousands or hundreds of thousands of dollars prospectively. The agreement only called for what amounted to a very nominal royalty. I wonder whether you and Mr. Logan discussed the potential value in terms of ultimate dollars to Pennsalt from the agreement?

A. Not to my knowledge. I think I want to correct one thing. I don't recall that I said that it was an extremely valuable, or whatever the word was you used. I think its value was two-fold. It was defensive in one sense, and the other sense was gradually, as time and interest on the part

[fol. 1446] of the pulp and paper industry in the northwest permitted or developed, it would undoubtedly help us to sell some chlorate up there which we might otherwise not be able to sell. I don't think we put a tremendous value on the thing. As I say, again it was another sales tool which we hoped would help us sell chlorate.

Q. Was there any discussion at this time of Pennsalt giving Olin anything of value over and above the 50 cents a ton? Was there any understanding about reciprocal benefits to Olin from the agreement?

A. No, sir.

Q. In the letter of transmittal of the executed chlorine dioxide agreement dated July 31, 1953, you attached a note to Mr. Shanaman in which you stated, "I thought it well to send our check at the time we returned the agreement to John Logan. If you feel that you would like to reimburse the parent company for a portion of this at least, that will be up to you. Originally I think you talked in terms of paying for the whole of it but the thought occurred to me that if we make use of this we should not ask you to stand the full amount. However, I will let you be the judge on that score."

I wonder, Mr. Drake, if you could tell us what you meant by "the thought occurred to me that if we make use of this"? Who was the "we"?

[fol. 1447] Mr. DeLone: I can't find my copy of the document to which you are referring. I would just like to see it; if it's available I'd like to have the witness see it.

Mr. Freed: I will have the reporter mark this document, which is a letter from Mr. Drake to Mr. Logan, with a note to Mr. Shanaman attached to the carbon copy.

Mr. DeLone: Mr. Subak has now found it.

Mr. Freed: Please mark this document Plaintiff's Drake Exhibit 2.

(The document referred to was marked Plaintiff's Drake Exhibit No. 2 for identification.)

The Witness: Well, I think that indicates again the idea of an agreement with Olin Mathieson on chlorine dioxide was stimulated by Fred because of its use, its potential use, in the northwest. I think I must have been referring in my

note that the thought occurred to me, et cetera, that if and when we ever made chlorate in the east this might be of interest to the other part of the Company with which I was concerned, and I think there is a big "if" there which I would like to underline. In fairness to Fred perhaps we should consider absorbing a portion of that cost.

By Mr. Freed:

Q. Had there been any discussion at this time between you and Mr. Shanaman or you and Mr. Logan about the possible future use of the process in connection with Penn-
[fol. 1448] salt's eastern operations?

A. I don't think so. I certainly don't recall it.

Q. During the negotiations between you and Mr. Logan what was the territorial scope of the agreement that you were negotiating? To what extent was Pennsalt seeking and was Olin granting rights to use this process?

Mr. DeLone: I object to that in light of the fact that the agreement, it seems to me, speaks for itself. If I understand the question, you seem to me to be asking the witness to interpret the agreement.

Mr. Freed: I would like the witness to tell us, in his negotiations with Mr. Logan, whether there was ever any discussion about the territory in which this agreement would be used.

The Witness: I think the only limitation on the agreement was that it was domestic in scope as to where it might be used.

By Mr. Freed:

Q. I'm not referring, Mr. Drake, to the terms of the agreement.

A. Oh, no, I mean in the discussion.

Q. Then the understanding was that Pennsalt would be granted by Olin rights to use this chlorine dioxide process, or to license its use throughout the United States?

[fol. 1449] A. I think so, yes.

. . . . . .

[fol. 1450] Q. During the entire course of Olin's agreement and renewal agreement with Pennsalt relative to chlorine dioxide, it is your recollection and your testimony that Pennsalt was at all times entitled to use the Mathieson process any place in the United States in connection with its promotional efforts on sodium chlorate?

A. At all times anywhere in the United States. And again, I say I don't recall any limitation.

Q. Is it a fact then, sir, that during the entire period from 1961 until the consummation of the joint venture with Olin, you personally had no doubt that Pennsalt was entitled to use the Mathieson process in its sodium chlorate sales efforts in the United States?

Mr. DeLone: You said from 1961. I don't believe you meant that date, Mr. Freed.

Mr. Freed: I certainly meant to say 1951, sir—I'm sorry, 1953.

The Witness: Let me comment on that in this way. The agreement specified—I haven't read the agreement recently—but to my recollection the agreement specified that this [fol. 1451] applied to the United States, and there had been no side agreements or anything of the sort contrary to what is in that agreement.

By Mr. Freed:

Q. In light of your answer, can you state whether at all times in Pennsalt's consideration of selling sodium chlorate in the east you considered that the Mathieson process was one of the assets that your Company possessed?

A. It was available to us to use in the United States.

Q. Was your use of the process in fact confined territorially from and after July 31, 1953?

A. You mean from a practical standpoint?

Q. From a practical standpoint, sir.

A. I don't recall, and I can be wrong on this, but I don't recall that any sales were made other than those made by Fred Shanaman and the Pennsalt of Washington Division. As I say I'm a little hazy on that, but I don't think there were.

Q. In other words, Mr. Shanaman's testimony, which is now scheduled for next week, would be the best information

available in the Pennsalt organization with respect to the scope of use of the Mathieson process, and it is your testimony that Pennsalt in the east never, in fact, used the Mathieson process in its selling efforts? Do I understand you correctly, sir?

[fol. 1452] A. I don't recall that we did in the east, no.

* * * * * * *

[fol. 1453] Mr. Freed: Exhibit 2 then will have 5 pages.

By Mr. Freed:

Q. Mr. Drake, at the time you and Mr. Logan negotiated the 1953 agreement, was there any discussion of the sodium chlorate potential market in the eastern part of the United [fol. 1454] States?

A. Again I don't recall it if there was; I doubt it.

Q. Can you now recall the first occasion on which you and Mr. Logan touched on the subject of the production and sale of sodium chlorate in the east?

A. Specifically, no, although I would guess that it would be somewhere in, oh, the '56 or '57 period.

Q. It would have been several years after the execution of the original chlorine dioxide agreement; is that correct, sir?

A. I would think so, yes. Again I emphasize, to the best of my recollection.

* * * * * * *

[fol. 1455] Q. Turning then to the first time you can recall consideration by Pennsalt of producing sodium chlorate east of the Rocky Mountains, can you tell us the date or the circumstances under which this possibility was first mentioned?

A. I can't recall the exact date. I would guess that for a number of years, maybe as much as, oh, eight or ten years, consideration from time to time has been given to the production of chlorate in the east by Pennsalt. I think to best [fol. 1456] exemplify what I am driving at, in '57, early '57, you may recall reference in the file to a note that I wrote to, I think, Messrs. Land and Shanaman, which, in effect,

said let's either fish or cut bait, as far as chlorate is concerned. We've been talking about it, deciding not to do it, talking about it and deciding not to do it. I don't know how many times the Company had done that before I had anything to do with it, really. But it has been going on for some time. And each time we would come up and find out it wasn't a profitable venture and shelve it.

Q. When you say, sir, that it did not look like a very profitable venture, are you referring to the projections of return on investments which you were able to make at that time, or were there other reasons which, in the early days of Pennsalt's consideration, led to rejection of an eastern plant?

A. Being somewhat familiar with the keen interest that the Company had in chlorate, as expressed by Fred Shanaman particularly, I am sure that the only reason that the Company did not long ago go into the production of chlorate in the east was the return on investment. I have never seen a project that has been introduced more times and turned down than this one.

Q. Considerations of chlorate in the east, I now wish you to address your attention to the panorama of considerations [fol. 1457] rather than any particular meeting at this time. What were the principal eastern markets that kept you interested in sodium chlorate?

A. The large outlet for sodium chlorate, or the growing outlet, being in the pulp and paper industry, I'm sure that the largest area that we contemplated serving was the southeast. There could have been a little up in the Wisconsin area but by comparison it was certainly less.

Q. Was your interest confined to the pulp and paper industry?

A. Largely, I would say, yes. There would be some in the ag-chem field, but it's relatively small by comparison.

Q. Prior to 1957 were your considerations of an eastern facility based on a lone venture or a combination with some other company?

A. I don't recall that the joint venture idea was considered at all prior to '57. I'm fairly certain of that fact.

Q. Then at least up to '57 Pennsalt's interest in sodium chlorate in the east was as a lone venture for Pennsalt?

A. (Nodding head.)

Q. In terms of the other activities of Pennsalt's eastern operation, how did sodium chlorate fit in? Was it a logical extension of your then existing activities?

[fol. 1458] A. Logical from at least one standpoint. There was a considerable knowledge of electrolytic processes in the east as there was in the west. I think an observation might be helpful to you at this juncture on that score. Until fairly recently, the growth thinking of our Company has been dominated pretty much by production-minded people. I think we had a tendency more to think in terms, well, if we can make it let's go into it. Now I am hoping that the pendulum isn't swinging entirely the other way, but that we are going to have, and we do have, a better balance in determining not only whether we can make it, but whether we can sell it.

As I have said in our shop many times, no one ever made anything at a profit; it has to be sold.

Q. In terms of your sales prior to 1957, did sodium chlorate fit into your existing organization?

A. Prior to '57?

Q. Yes, sir.

A. You're talking now of the eastern sales organization?

Q. That is correct, sir.

A. No. Now there was a period there when some of our ag-chem, in fact our headquarters for ag-chem were east for a short time. When I say "no" I think I must clarify the ag-chem group probably could have handled some of the sale of chlorate in the east, but we had no representation [fol. 1459] down in the southeast, and the use, as I mentioned before, of chlorate in the Wisconsin area was, as I recall it, relatively small. I don't think the nature of the mills up there are such that they require this type of bleaching.

Q. When you say there was no—strike that.

When you suggest that there were no sales in the southeast, are you testifying that Pennsalt had no selling organization in the southeastern part of the United States in this period?

A. First I don't think I said there were no sales in the southeast. If I did, I didn't intent to.

Mr. DeLone: You said you had no representation in sales.

The Witness: I'm sure we had some sales. What they were I don't recall, but we had no representation in the southeast of any magnitude. We had a few jobbers that were selling small amounts of caustic soda and things like that, but I don't think we had—I know we didn't have any direct sales organization in the southeast.

By Mr. Freed:

Q. During your consideration of the sodium chlorate project in the southeast prior to 1957, how did you contemplate selling the product?

A. We would have to develop a sales organization to do it.

[fol. 1460] Q. Was the development of a sales organization in the southeast actively considered at this time?

A. No, I don't think so because each time we looked at the project, the return just discouraged us, that's all. We never got to the point where we even considered the selling end of it, and bear in mind again, I think this is very important, the thinking of the company as to the domination of the production mind rather than the marketing mind. I think that is very important.

Q. Mr. Drake, there are many articles and publications which suggest that the pulp and paper industry of the southeast today is a leading consumer of chemicals. Does your Company engage in the production of chemicals which are in demand by the pulp and paper industry of the southeast?

A. Well, first of course, we produce in the northwest chemicals that would be in demand in the southeast. We produce that both at Wyandotte, Michigan and Calvert City, chlorine and caustic soda, and they certainly are examples of products which are used in the pulp and paper industry.

Q. Have you, since 1953, developed your sales, any sales of consequence, to the pulp and paper industry of the east?

A. I wouldn't say of consequence, no.

Mr. DeLone: Did you say of the east or the southeast?

[fol. 1461] Mr. Freed: Of the east.

The Witness: You're speaking now of the pulp and paper industry of the east, however?

By Mr. Freed:

Q. That is correct, sir.

Can you tell us why Pennsalt has refrained from developing the paper industry of the southeast as a large market for its chemicals?

A. I think primarily because it was unprofitable to do so. You see, there were chlorine and caustic plants scattered all through the southeast. The only way to reach a customer is to equalize freight, which means you go right past your competitor's door and he has got a distinct advantage from that standpoint because of his proximity to the customer, and so long as we could sell the output of those plants without having to equalize freight of that magnitude, why, we just didn't choose to do it.

Q. If the return on investment which your Company calculated prior to 1957 on a sodium chlorate facility in the east had been high enough to meet your policy objectives, how would you have gone about developing the sales organization required to sell the output of the plant?

A. This obviously is conjecture on how it would have been done. I would think, however, that we would probably try to do one of several things. We would probably put [fol. 1462] some men up in the northwest for a couple of years to get the benefit of the knowledge that exists up there. With that knowledge then they would be transferred to the southeast and they would then start from scratch, trying to develop their contacts among the pulp and paper mills. Now those contacts would be, well, shall we say, multifarious. They would be purchasing departments, the technical people in the plants, the plant superintendent, all of whom would have to be cultivated to develop a knowledge of Pennsalt; we would hope a liking for our representatives, and a certain degree of confidence that this newcomer in the area had a product of quality, or could produce a product of quality which would meet their requirements.

Q. If Pennsalt had undertaken a sodium chlorate project in 1956, how long do you estimate it would have taken to develop a sales force capable of selling the output of this size plant contemplated?

Mr. DeLone: Would you specify the size plant you have in mind, because there were so many different estimates? I think it would be simpler to answer it that way.

By Mr. Freed:

Q. I believe in the period up to 1957 the plants were in the range of 8,000 to 15,000 tons.

A. That's about right. They went from 7,500, something like that, 15,000. The question is, how long would it take [fol. 1463] to develop a sales force to sell the output of such a plant?

Q. How long would it have taken had you begun in late 1956?

A. That's really a $64 question.

Q. Mr. Drake, didn't you consider the selling aspects of your projected sodium chlorate plant during the years up to 1957 in which you were contemplating a sodium chlorate venture in the east?

A. Again I emphasize, and again over-emphasize, the factor that I mentioned before, that the Company's thinking was more attuned to production than it was to sales, and I think, improperly, for a balanced growth of a company. And I think we have taken some steps to correct that, but I think in all honesty I think I have to say that unfortunately our thinking as to how we were going to sell the product was pretty far down on the totem pole.

Q. Can you recall the discussions which you had prior to '57 about the manner in which Pennsalt would develop the necessary selling organization?

A. No, I can't, really.

Q. Do you mean by the testimony you have just given, sir, that had the return on investment of Pennsalt's sodium chlorate plants up to the beginning of 1957 been satisfactory in terms of Company investment, policy objectives, that the Company would have gone ahead with such a project and permitted the selling of the product to follow [fol. 1464] in a natural course? Is that the import of your testimony, sir?

A. I'm sure that at some point before the decision was actually made to go ahead with it, assuming the return on investment was satisfactory, that someone would have been

charged with saying how they were going to sell it and when, and if possible, to whom.

Q. But in the years prior to 1957 the Company would not have been as concerned as it is today about how it would go about promoting the sales of a project which appeared to be profitable in terms of your policy objectives; is that correct?

A. Again I say, unfortunate as it was, I think that is a correct statement.

Q. When was it that you first decided that Pennsalt could not successfully sell sodium chlorate in the east on its own?

A. I would think it was probably in the '56, '57 period of the volume that would be required to get a decent return.

Mr. DeLone: Your question said to sell in the east. I assume you meant by that produce and sell?

Mr. Freed: Yes, sir, I stand corrected, and does that influence your answer in any way, sir?

The Witness: No.

[fol. 1465] By Mr. Freed:

Q. Beginning then in 1957, was your thinking with regard to sodium chlorate geared solely to a joint venture operation?

A. Not solely at the outset. As I think I mentioned before, touched on it briefly. Early in '57, as you will recall, I think I recall it was at the time Oldbury announced a further expansion of their plant. I couldn't understand why, after we had looked at this thing for so many times, other people would go ahead with it and we couldn't. Was there something the matter with us? So we had a full-blown session on sodium chlorate, which I think I termed, to decide once and for all whether we were going to do something with it. That was early in '57 as I recall it. Some preliminary figures were made up on various sizes of plants, and I think shortly thereafter came the Arthur Little Report on the market side. The initial figures on the estimated cost on plants of—I think they were roughly 15,000 and then 20,000 and 25,000 tons, were of the magnitude of what we would call plus or minus 25 per cent. The engineering had not been refined to a closer degree than

that. Each one of those, of the smaller plants, showed a very inadequate return in terms of our investment policy. The 25,000 ton plant initially showed a much better return. I think that's, again, part of this final decision as to whether we were going to go ahead or not. I hoped it [fol. 1466] would be a final decision.

The initial return estimate of the plus or minus 25 per cent looked close enough to our requirements, return on investment-wise to then find out more about the markets for the product, and then to determine whether we could sell the volume required to get that return.

Mr. DeLone: Your reference there is to the 25,000?

The Witness: 25,000 ton plant.

Now during that Arthur D. Little survey, as I recall it, we also refined our costs to a plus or minus ten per cent. That, incidentally, reduced somewhat the return on the 25,000 ton plant. I don't recall exactly the figures but I think it dropped from around 25 per cent to about, oh, 19 or 20 per cent. I think it was about then that this matter of our deliberations as to whether the possibility of a joint venture came into the picture.

By Mr. Freed:

Q. The Little Report, I believe, was delivered in August of '57 and your evaluations of it proceeded in the next few months of 1957; is that correct?

A. Well, the evaluations of that and the other factors in the project, yes.

Q. In your considerations at that time in the latter part of '57 of a joint venture, had Pennsalt made a decision whether it could or could not proceed on its own?

[fol. 1467] A. No, it hadn't.

Q. The consideration of the joint venture was one of the factors that entered into your deliberations on how to proceed?

A. That's right.

Q. When was it that Pennsalt first learned of Olin's interest in entering the sodium chlorate business?

A. I can't answer that specifically but I know it was late, probably in '56, maybe.

Q. Were you the one who learned of Olin's interest?

A. No, I don't think so. I think it either came from discussions with either Fred Shanaman or possibly Land had had with Olin. I don't recall that it came up initially with me.

Q. In late '56, what was your understanding about Olin's interest in the sodium chlorate business in the east?

A. Well, this is recollection now, but I think probably an expression of theirs that they had thought about chlorates in the east, or an expression of ours that we had thought about chlorates in the east, and whichever one made the comment first, it probably was passed back to the respective companies with the question, would we have any interest in exploring this with Olin Mathieson.

Q. Your recollection, Mr. Drake, is that the first knowledge on the part of Pennsalt that Olin was interested in [fol. 1468] the sodium chlorate business was communicated to Pennsalt, to an individual other than yourself; is that correct?

A. I think so, yes.

Q. Either Mr. Shanaman or Mr. Land would be able to tell us?

A. Yes, I think so.

Q. Do you recall who in the Olin organization spoke with Mr. Land or Mr. Shanaman?

A. No, I don't. My guess would be that probably Shanaman would be the one because he would have had, probably at that time, would have had more occasion to talk with Olin than would any of the rest of us.

Q. Why was that?

A. Because of the—primarily I think because of the chlorine dioxide process which he was using.

Q. Did the chlorine dioxide process and the agreement, which covered it, require extensive consultation between Olin and Pennsalt?

A. Not necessarily, no.

Q. At the time you first learned of Olin's interest in the chlorate business, was it your understanding that Olin was interested in becoming a seller or that it was interested in becoming a producer and seller?

A. I don't think it was refined to that point. I'm not sure. I do recall, I think it was early in '57, and Fred [fol. 1469] Shanaman developed with Mathieson, as a part

of the exploration, as to where we might go, we, Pennsalt, might go with a chlorate plant in the east; discussed the possibility of supplying some limited quantities to Olin to see what they could do with it in the east. I don't recall how much was supplied in '57 but I think there were some limited quantities, I think it was '57.

Q. Did you participate, Mr. Drake, in any of the negotiations with Olin which resulted in Pennsalt furnishing some sodium chlorate to Olin for marketing in the east?

A. Let's see. I'm quite certain that at some point I came into the picture, and as I recall it, it was one time when Fred Shanaman was east. John Logan came up from Baltimore and I think Fred and John and I and possibly Hugh Land had a discussion with John. This may have been a bit along in our thinking as to how much interest either Pennsalt or Mathieson had in the possibility of a joint venture, but I do recall a meeting at that stage with Mathieson on it. Subsequent to that, I think it was subsequent to that, I explored with John Logan the possibility of where might a plant be located. As *a* recall it, he looked at a couple of locations where they already had plants. One I think was at McIntosh, Alabama and the other was at Brunswick, Georgia, and as this comes back to me, I think that primary interest at that stage of the game was, what kind of a power cost we might enjoy, power being an im- [fol. 1470] portant factor in the economical production of this material.

Q. At the time you were discussing locations and power costs, had a firm decision been made by Pennsalt that if it went into the chlorate business in the east it would be as a joint venture?

A. No, I don't think even at that stage any firm decision had been made.

Q. At the time the arrangement was made for Pennsalt to furnish sodium chlorate to Olin for sale in the east, was it contemplated that Pennsalt would lose money on those sales?

A. It depends on to whom you're addressing that question, I think, somewhat in this regard. Theoretically, if we could have sold all of our chlorate at that time in the northwest and had to pay the freight east, we certainly would have made no profit, possibly lost a little. Frankly, I am

not convinced in my own mind that at that stage of the game we were able to sell our entire output in the northwest and that the limited quantities that we were shipping east, therefore, were extra, so called, and had we not produced it and shipped it, I really don't know whether we would have fared better or not. That is why I smiled a bit when you asked the question.

Q. Then you didn't consider it then to be a losing [fol. 1471] proposition? This was a way of marketing profitably a portion of your sodium chlorate output?

A. That isn't what I meant to convey to you. I think the intent, the principal intent, was of market exploration, but to be in conformance with the oath that I just gave a while ago, I have to make this other comment, which I did about the question as to whether we could, at that particular time, sell all of the output of the plant up in the northwest. It was not long after that that we could sell all there was in the northwest because I recall that—I'm hazy on the dates, but I know that there was a time when Mr. Shanaman said that, "Well, are we going ahead with this thing or not because I can't continue to ship to the east. I need the material up here."

Q. In other words, at the time the arrangement was first made Pennsalt was not marketing the full output of its chlorate plant on the west coast, but subsequently Mr. Shanaman felt that he could so market it, and from that time after?

A. I think there was a temporary period there when we had some excess on the west coast and the northwest.

Q. But that excess did exist?

A. So that the decision to explore the markets in the southeast was not as difficult to make on the part of Fred Shanaman to relinquish that tonnage at that time. I think [fol. 1472] it facilitated, if anything, the exploration of the southeast.

Q. Do you recall the discussions which you had with Shanaman and Logan and perhaps Land with regard to the exploration arrangement?

A. I don't recall it specifically in regard to the exploration arrangement. I know that we did have a meeting again when Fred Shanaman was east, at which time we felt that the thing was looking sufficiently interesting, although no

commitments were made at that stage, but it was sufficiently interesting for each of us to conclude that we would keep each other advised of our thinking in regard to chlorate in the east. Again, I emphasize, with no commitments, and there is nothing on the order of, well, we won't go into it, or you won't go into it, but as a matter of—just as a courtesy that you would have with a distributor. If you're going to drop a distributor and sell direct, you would give the courtesy to the distributor of telling him before he woke up and found a salesman calling on his customers. Well, that was the nature of the discussion to which I am referring.

Q. With Mr. Logan?

A. With Mr. Logan and Shanaman and; I think, Land was in it.

Q. During these discussions was Pennsalt still considering the possibility of producing sodium chlorate in the east? [fol. 1473] Mr. DeLone: Would you define what you mean by "these discussions"? We have been referring to one meeting and I don't know what you mean by "these discussions".

By Mr. Freed:

Q. During your discussions with Mr. Logan with reference to the exploratory arrangement and with the understanding that each of you would advise the other——

A. Yes.

Q. —of your continuing interest, was Pennsalt then still considering the possibility of producing sodium chlorate in the east?

A. Yes, I would say we were. No final decision had been made on it.

Q. And when did you first learn that Olin was considering producing sodium chlorate in the east?

A. I can't say that I ever learned that they were considering producing chlorate in the east until shortly before January of 1960, and what led up to this initial meeting with Messrs. Block and Logan, and for a very short period, Mr. Osborne, I think must have stemmed from discussions either Land or Shanaman had had with Logan or Block, where the indication was, well, let's seriously consider

going into this jointly. I think that was really the first indication that I had that they were, in your terms, con-
[fol. 1474] templating production of chlorate in the east.

Q. Do you recall who the principal eastern producers of sodium chlorate were during 1957 and 1958?

A. I think they were American Potash and Hooker.

Q. Did you know that at least since 1955 Olin had been engaged in efforts to develop a process for producing sodium chlorate?

A. That came out in one of our discussions in January. It came up at the time we were evaluating the relative merits of the various processes, of which one was Pennsalt, that might be used in what is now the Penn-Olin plant.

Mr. DeLone: Came up in January of what year?

The Witness: '60.

By Mr. Freed:

Q. During the January 1960 discussions with Olin what did you learn about the efforts which Olin had previously made to produce sodium chlorate or develop a sodium chlorate production process?

A. I learned this, and I think you have to put it in its proper perspective. At that point we were evaluating the relative contributions that the companies, the two companies, might make to a joint venture. Obviously you have to take at face value what a person, whom you think is an honorable person, or you wouldn't deal with them if you didn't think that they were, says about how much they have
[fol. 1475] done in the development of a process. Obviously I am sure that Olin Mathieson was putting their best foot forward to convince us that they had a process that was equally as good as ours, so that we wouldn't place too great a value on our process.

I think I must say that because I think you have to take it in light of the conditions existing at the time. We were beginning to, in effect, negotiate. I don't know how much they had done on it, I still don't know how much they had done on the development of a process. I think they had talked with some foreign operation about a cell, a Krebs cell, I think this was, and in effect I think they were endeavoring to sort of pooh-pooh the idea that we had

much of a process. We obviously didn't agree with that, but I think that's the best answer I can give you as to when I really began to have any indication from them that they had done much of anything on the development of a chlorate process.

Q. During those January 1960 negotiations, did the Olin people suggest to you that they were capable on their own of producing sodium chlorate?

A. I think they endeavored to imply that for the very reasons that I mentioned.

Q. Apart from their reference to the negotiations they had had with Vickers-Krebs with regard to a sodium chlorate cell, did they indicate anything further about the [fol. 1476] development work which they had been doing in the sodium chlorate production field?

A. I think they made some reference to work that they had done, and I don't, to this day, frankly know whether they were doing it to make chlorate, to sell chlorate, or whether they were doing it to make chlorate, to convert to perchlorate.

Q. What did they say about the development work they had done?

A. I don't remember specifically what they said. As I indicated before, they were trying to give us the impression again, in light of these negotiations, that Pennsalt didn't have all the knowledge in the world on how to make sodium chlorate, and I think if I were in their situation I would have done exactly the same thing.

Q. Can you pinpoint, sir, the meeting or the time in January of 1960 that this discussion took place?

A. Well, let's see, it was early in January because things happened awfully fast from then on. Between that time and February the 11th, I think it was, when we put out an announcement.

Q. Where did the meeting take place?

A. In New York at Olin Mathieson's office.

Q. Prior to that meeting had Pennsalt previously made a decision with respect to a joint venture?

[fol. 1477] A. We had made the decision that we didn't see how we could go it alone.

Q. And when was that decision made?

A. I would think probably about—shortly after we recog-

nized the two things that we had to have, a minimum of 25,000 ton plant and that, as a result of the Arthur D. Little Report and the evaluation of our sales people, it was concluded that we just couldn't sell that much or anywhere near it.

Q. Can you fix a date before which Pennsalt was considering entering the production of sodium chlorate in the east on its own and after which the only alternative that remained open were joint venture or no venture at all?

A. It's difficult, I wish I could, but it's difficult to do it because, not only were there those factors which I have just mentioned, but also lurking in the outskirts, so to speak, was always the possibility that the surge in demand for ammonium perchlorate, which has been anticipated by some at least for some time, would occur. Now if that did occur or if we could contemplate that it would occur in the relatively near future, the conversion of a portion of the production of that chlorate plant to perchlorate would have relieved the problem of selling the chlorate and, incidentally, would have improved the return on investment on the overall project, so that all through this that was always [fol. 1478] a possibility. I don't recall specifically when that was done.

Q. Did Pennsalt ever actually decide then not to go alone prior to the time that these joint venture discussions took place in New York in January of 1960?

A. I wish you would repeat that again. I'm sorry, I lost you.

(The reporter read the question.)

Yes, yes.

Q. When was that decision?

A. I would say late in '59.

Q. Can you recall a meeting at which this was decided?

A. Specifically, no, I cannot.

Q. Can you recall who made the decision?

A. Ultimately I guess I did.

Q. What were the factors that caused you to make the decision with all these doubts about ammonium perchlorate and other factors in the air?

A. Well, what our sales people felt they could sell and with the extreme—what is the word I want—looseness of

the estimate of the demand for perchlorate, it became obvious that the return on the investment was so low that the risk involved was not worth taking.

Q. What were the sales estimates of what Pennsalt itself [fol. 1479] could have done that entered in your decision?

A. Oh, I think the best I have heard, and these have varied, but they ranged from 8,000 to 12,000 tons in a period of time. That is a far cry, obviously, from 25,000.

Q. But at the time you made the decision in late '59 that Pennsalt would not proceed alone, the best sales estimate that was available to you was 8,000 to 12,000 tons per year of sodium chlorate sold in the east?

A. Yes, and it would take a while to reach that figure.

Q. In the discussions that you had with these sales people, how long did they think it would be before they could make those sales?

A. Well, they were estimating, obviously, but I would say three, four years. I'm sure it's somewhere in the file but I don't happen to recall what it is.

Q. In light of the projection of the possibility that Pennsalt could make sales in the range of 8,000 to 12,000 tons over a period of several years, did you consider the possibility of going into the sodium chlorate facility with Olin as an agent, sales agent?

A. I'm sure that at some stage of our thinking all through this we contemplated that among other possibilities, such as the joint venture, for example. I don't recall that we gave any lengthy consideration to it, but I think I would be remiss if I didn't say that undoubtedly we gave [fol. 1480] that some thought.

Q. What was the latest time prior to the creation of Penn-Olin Chemical Company that you gave consideration to asking Olin to be a sales agent for Pennsalt's sodium chlorate plant in the east?

A. I don't think we gave it that serious a degree of consideration. I mean, there were too many factors in there that would leave us rather vulnerable from an investment standpoint.

Q. Could you tell us what those factors were?

A. Well, normally a sales agent would be one who would sell as much as they could. Well, now in order to get, whether it's Olin Mathieson or any other agent, to push

the product, why, obviously, you've got to make it attractive to them. In other words, your margin on the thing has got to be enough so that they will push that product as against something else. The tendency on the part of any producer is to push their own products, and a natural tendency. Unless, and we felt it would be inconceivable, I'm sure, at that stage at least to have Olin guarantee to take a certain output so that we could minimize the risk that we were taking, why it just wasn't a plausible way to proceed with the project as we envisioned it then.

Q. Wasn't Olin then engaged in selling a full time of [fol. 1481] chemicals to the pulp and paper industry of the south?

A. I don't know what you mean by "full line". I imagine they were selling caustic and some chlorine, and what else I really am not familiar with what else they do sell.

Q. Altering my question, wasn't Olin engaged in making substantial sales of chemicals to the pulp and paper companies of the southeast?

A. Yes, I think so.

Q. And sodium chlorate would have been, as it is now, simply an additional chemical in the salesman's line; is that correct?

A. Uh-huh.

Q. It would not have required much additional investment on the part of Olin in terms of time or in terms of personnel or dollars or equipment to simply add another chemical to their salesman's lists; is that correct?

A. I can't—I don't feel I know enough really to make that assumption. I don't know how much they would have to add in the area of technical service in the utilization of the chlorine dioxide process, which is conversion from chlorate to the chlorine dioxide.

Q. Are you familiar, Mr. Drake, with the deposition taken two weeks ago of Mr. Northgraves of Olin Mathieson?

A. Somebody mentioned that he had had a deposition but that is as much as I know about it.

[fol. 1482] Q. Subject to the introduction of that deposition, or the testimony of Mr. Northgraves at trial, I think it's fair to say that Mr. Northgraves testified the need for

technical service to the pulp and paper industry in connection with chlorine dioxide generation was virtually at an end because most of the chlorine dioxide capacity of the pulp and paper industry has already been installed. Is this something that you have heard of before?

A. I haven't, frankly, heard that statement before. I'm a little surprised to hear it, frankly, because the pulp and paper industry have been using chlorine and caustic soda for many years, and if our people in the northwest are accurate in their appraisal, a continuation of a technical service group, serving the pulp and paper industry just on chlorine and caustic, is a very integral part of the sale of chlorine and caustic to the pulp and paper industry. And you don't do anything or don't do as much with chlorine and caustic, as I envision, and I must admit that I'm not a technician and I may be all wet. I would think, however, that if you needed it on chlorine and caustic you also needed it on a chlorine dioxide, but he's the expert and I'm not, so obviously you have to lend some weight to what he says.

Q. I do not mean to state as a fact for the record that this is what Mr. Northgraves said. I tell you this is my understanding and ask you whether you have previously, [fol. 1483] previous to this morning, heard that Mr. Northgraves so testified, or have, previous to this morning, acquainted yourself with the current thinking in the Olin organization with regard to the need for technical service in the chlorine dioxide sodium chlorate sales area?

A. The answer to that would have to be "no" on both counts.

Q. Assuming if you will, Mr. Drake, that the need for technical service in connection with the sales of sodium chlorate is minimal, are there any reasons apart from technical service why Pennsalt did not explore with Olin the possibility of continuing and elaborating the sales agency arrangement which had existed in sodium chlorate since 1958?

Mr. DeLone: Mr. Freed, it seems to me he answered that question just a little while ago without reference at all to technical service.

By Mr. Freed:

Q. Did the question of Olin as a sales agent for Pennsalt come up at all in the discussion in New York in January 1960 with Olin?

A. No, unless you can interpret the period between the time we would start building a plant until it would be on stream that they would technically be serving as a sales agent, perhaps, for that amount of material that they would be getting from our northwest operation.

[fol. 1484] Q. Did Pennsalt make any efforts to explore the possibility of any third party, or third parties, acting as distributor of sodium chlorate in a 25,000 ton facility to be erected solely by Pennsalt?

A. I don't think so.

Q. And can you tell us why these possibilities were not considered?

A. I think for the same reason I expressed before, that the vulnerability, when the volume is so essential to the, even the break-even point of a project like this, that to put yourself in the hands of an agent who has no financial interest in the venture is a little more risk than I would want to take in this type of venture.

Q. Are there other chemicals on which Pennsalt relies heavily on distribution through sales agents?

A. One area that I can think of only. That's in our laundry-dry cleaning department where I think most all of our products, if not all, are sold through what we call jobbers, but we've got, I don't know, 50 or 60 salesmen who are keeping after the jobbers all the time, so I think the situation is quite different.

Q. Was there something unique about sodium chlorate that precluded you from exploring the possibility of entering into contracts with other chemical companies or other agents for the sale of sodium chlorate from Calvert [fol. 1485] City?

A. Yes, it's largely a one industry product, and Lord knows, the competition for that material already is pretty keen. Now here we are adding another competitor and I guess we aren't the last, from what I gather. You have got to have someone that knows the field, is known by the field, and I think that's equally important, and we feel someone

who has a financial interest in making certain that the volume is developed. It's too easy as a jobber of a product, if the going gets a little tough in your selling, to say, oh, well, we only make a small margin on this thing anyway, we'll devote our time to our products that we make, which is all right for them but it wouldn't be very good for us who are, shall we say, holding the bag with a 7 plus million plant.

Q. Did you consider a joint venture with anyone other than Olin?

Mr. DeLone: You're now talking about for the marketing of sodium chlorate.

Mr. Freed: That's right, thank you.

The Witness: No, No, I don't think so.

By Mr. Freed:

Q. Apart from your prior sales and license agreement arrangements with Olin, what prompted you to choose Olin as the joint venturer?

A. Well, it's pretty hard to say, apart from, because [fol. 1486] those are pretty important, I think, in our—in the development of this. Obviously from that we learned that Olin had close contacts with the pulp and paper industry and they would seem to be a very logical person to approach or discuss this matter of a joint venture on the chlorate.

Q. Were they—did you consider Olin to be clearly superior to other potential sellers of the output of your joint venture plant?

A. For chlorate to the pulp and paper industry?

Q. Yes, sir.

A. Yes, sir.

Q. Can you tell us the bases on which you considered Olin to be superior to other potential sellers of sodium chlorate?

A. Well you can look at it first from the negative standpoint, who else is there?

Q. You're in the industry, sir, and I'm not.

A. Well, actually with the exception of Allied's Solvay Division I don't think there is anyone else selling chlorates to the pulp and paper industry that isn't producing it.

Q. Were there other companies who were engaged in successfully selling a large volume of chemicals to the pulp and paper industry, even though their chemical lines did not then include sodium chlorate?

A. I'm not too familiar with what the various companies are selling to the pulp and paper industry. There were [fol. 1487] some that sell specialties, so-called. How much companies like DuPont and Dow and American Cyanamid sell to the pulp and paper industry I'm just not familiar with.

Q. Is it possible that Pennsalt might have entered into sales agency arrangements with several chemical companies such as those you have mentioned in an effort to market a portion of its own facility at Calvert City?

A. You ask me a rather difficult question for me to answer, because I won't say that anything is impossible. I think it would be impractical.

Q. How would that be, sir?

A. Well, again, you come back to the importance that any company would lend to the sale or the resale of a product or in the effort they would put behind that sale, and we just think that's too great a risk to take with us putting all the investment in the plant.

Q. At the ime you entered into the joint venture agreement with Olin, was it your thinking and the thinking of the Pennsalt organization that this was the most advantageous way for a newcomer to break into the southeastern market for sodium chlorate?

A. I don't really think we gave much thought to the question as you posed it. I will answer it in this way, if I may, that we thought, and still think, that it is the most advantageous way for Pennsalt to enter that market.

[fol. 1488] Q. During your discussions in New York in January 1960 with Olin did the Olin people at any time suggest that they, as an alternative to the joint venture or absent the joint venture, might enter the sodium chlorate business on their own as a producer?

A. I think I answered that in part when I referred to the negotiations, when we were talking about the technology available to each of the two companies, and I think you have to take my answer in its proper context, and in view of the conditions as they existed at the time, those condi-

tions being again one of negotiations. To my knowledge Olin never specifically stated that they were contemplating or could go into the production and sale of chlorate. They obviously in the negotiations implied that they could, and that is extremely important, I think, to recognize the conditions under which they implied that. They were putting their best foot forward to minimize, if they could, to us the value that we placed on our technology.

Q. Do I correctly understand you, Mr. Drake, to have testified that these negotiations in New York in January in 1960 were the first suggestion to you that Olin believed itself, or was claiming itself, able to become a producer of sodium chlorate on its own?

A. I think you're putting that a little strongly when you [fol. 1489] say, "claimed itself" or "believed itself." They tried to convey to us that they could without—I don't recall their specifically stating that they could. I think it's a fine point but I think it's a very important one. We didn't have the luxury, incidentally, of being able to turn the tables and saying, well, we could sell it too.

Q. When Olin suggested that it might be capable of becoming a producer, did you take their statement at face value or did you have some other reaction to it?

A. Well, I think the answer to that is, the relative value in the joint venture is 50-50, so they must have put some value on our technology and they must have been bluffing to a degree as to their ability to produce as economically as we can sodium chlorate.

Q. Have you, Mr. Drake, familiarized yourself with the deposition taken last week in Baltimore of Doctor Bruno Wojcik, W-o-j-c-i-k, who for many years headed the Research and Development Division of Olin's Chemical Division and, in particular, supervised Olin's efforts to obtain sodium chlorate productive capability? Are you familiar with his testimony, sir?

A. No, sir. Again I know that he gave testimony.

Q. I state to you, subject to introduction of the deposition or Doctor Wojcik's testimony at trial, that it was his [fol. 1490] testimony that Olin had the ability for many years prior to 1960 to enter upon the production of sodium chlorate, but through this period was engaged in research

and development on new techniques of embarking on such production.

Is my statement to you now, and subject to its verification by the testimony of Doctor Wojcik, the first indication that you have had that Olin was for many years seriously considering entering upon the production of sodium chlorate?

Mr. DeLone: Excuse me, but the question was, first you said that they had the ability. Now you end up saying that they were seriously considering. It seemed to be two different thoughts there and I think the question is confusing. Which are you talking about, Dr. Wojcik's claim, as you expressed it that they had the ability, or a claim that they were seriously considering doing it?

Mr. Freed: I should have, sir, added to my statement concerning Dr. Wojcik's testimony that he did testify that Olin was seriously considering during a good portion of this period becoming a producer of sodium chlorate and supplementing my description of his testimony in that way, I ask you whether my statement to you this morning is the first indication that has ever come to you that Olin Mathieson Chemical Corporation had considered, for a substantial period prior to your joint venture, arrangement, embarking [fol. 1491] itself on the production of sodium chlorate?

The Witness: Again I have to refer to the negotiations in January in New York, at which time they tried to convey as best they could to us that they had the facility to go into this business. Again, I repeat that I interpreted that as a negotiating statement.

Now as far as Dr. Wojcik is concerned, we have the Dr. Wojciks in our organization too. If you were to talk to any number of our scientists they would assure you that they had a process that would do wonders for the company, and they never can understand why the company is so stupid and shortsighted not to go ahead with their process. I don't know whether this applies to Dr. Wojcik or not. My only reason for even referring to the similarity of situations is that I was under the impression that in the technical evaluation of the various processes to use in the Penn-Olin plant, it boiled down, as I recall it, to whether

we use the—I think you said the Vickers-Krebs cell or whether we use a Pennsalt cell. I don't recall that much, if any, consideration was given to the developments of Dr. Wojcik.

Now this is only a recollection and I may be misinformed on it, but I think, again, the testimony of the Dr. Wojcik has to be, or should be recognized in that light. They're [fol. 1492] human beings and, bless them, we need them and we need more of them, and I compliment him for his confidence in what he has developed.

Q. Do you, sir, doubt that Olin was capable and had seriously considered embarking on the production of sodium chlorate prior to January 1960? Do you have any information concerning it?

A. Specifically, no, no.

Q. Accepting the statements or suggestions which Olin made to you in the January 1960 meeting about their production capability, accepting those statements at face value, would not Pennsalt and Olin then in January 1960 have been potential competitors of one another?

A. No, no, they wouldn't have been because we wouldn't have gone into it.

Q. And that was because your decision had been made in the latter part of 1959 not to go alone?

A. We could not move the material.

Q. If in fact Olin was capable and was seriously considering entry upon the production of sodium chlorate prior to the latter part of '59, going back into early '59, '58, '57, would it then be correct to say that during that same period Pennsalt was considering embarking on the same kind of project, namely, the production of sodium chlorate in the east?

[fol. 1493] Mr. DeLone: I object to the form of that question. The witness has answered what Pennsalt was considering; and what Olin may have been considering in those periods, this witness is not in a position to answer because, as he said, he had no knowledge of it.

He has testified as to Pennsalt's considerations. It seems to me you are now reaching the point of argument or draw-

ing of conclusions which you are well able to handle when this case is presented in court. I don't think this is the proper subject for deposition.

By Mr. Freed:

Q. Mr. Drake, did you at any time prior to the agreement of February 11th, 1960 consider that Olin was a competitor or a potential competitor of Pennsalt in engaging in the production and sale of sodium chlorate east of the Rocky Mountains?

A. That they were a competitor, unequivocally, no. I suppose anyone is a potential competitor. I couldn't honestly say, if you asked the same question about DuPont, or Dow or Carbide that I could say potential competitor, no, I couldn't say that.

Q. Limiting ourselves solely to sodium chlorate and solely to what you knew about Olin's interest and Olin's activity [fol. 1494] in the sodium chlorate field, were you ever concerned that Olin might, by itself, enter the production and sale of sodium chlorate in the east?

A. I don't think I was because you're speaking of the period during which we were considering at least the possibility of a joint venture with Olin.

Q. I would like you to consider, sir, the entire period that we have discussed, up to February 11, 1960, when the joint venture agreement was consummated.

A. Now you're talking about the period from '53 on?

Q. Yes, sir.

A. I can't conceive that sometime during that period we, even I didn't think that it would be possible for Olin Mathieson to produce chlorate.

Q. Can you recall when it was that you did consider?

A. No, I can't. As I say, I don't recall specifically but I can't conceive at some point during that period I wouldn't have thought, well, they could produce this material.

Q. Can you recall when that thought did occur to you?

A. No, I say I don't know.

Q. You're just stating it must have?

A. I'm sure it must have at some point, just as it has occurred to me that others might produce sodium chlorate.

Q. Right.

[fol. 1495] Mr. Freed: I think now would be an appropriate time to recess for lunch to reconvene at a quarter of two.

(Whereupon, at 12:30 p.m. the taking of the deposition was suspended for a luncheon recess until 1:45 o'clock p.m.)

[fol. 1496] AFTERNOON SESSION

1:30 p.m.

Whereupon WILLIAM P. DRAKE resumed the stand and, having previously been sworn, was examined further and testified as follows:

FURTHER EXAMINATION ON BEHALF OF THE PLAINTIFF THE UNITED STATES OF AMERICA

By Mr. Freed:

Q. Mr. Drake, at the Olin Pennsalt meeting in January 1960, which I believe was held on January 21st, 1960, according to a file memorandum by Mr. Clem, who was it in the Olin organization who suggested or made the remark that referred to Olin's productive capability or efforts in the sodium chlorate field?

A. Specifically I don't know. I would guess, probably Mr. Block.

Q. Could you recall what he said; what his words were?

A. I'm afraid I would be very misleading if I tried to reconstruct it because I honestly don't remember.

Q. Can you recall the context in which it came up?

A. The context I am sure was at that meeting, specific meeting, was in relation to what Olin Mathieson had to offer as compared to what Pennsalt had to offer to a joint venture.

Q. And according to Mr. Block Olin had what to offer?

[fol. 1497] A. Well I would guess that the comment might have been made after we had said how much we know about the production of chlorate. Well, we aren't without some knowledge of chlorate ourselves. We've done some work on it. I think it is evidenced by your mention of the Doctor that they had done some work. I'm trying to imagineer

here, in a sense reconstruct a thought rather than actual words as it might have been presented.

Q. But you cannot recall specifically—

A. No, I don't.

Q. —the conversations that took place?

A. No.

Q. I believe you stated this morning that Pennsalt in late '59 contemplated that it might be able to sell 8,000 to 12,000 tons of sodium chlorate in the east over a three or four year period of sales development.

Can you state for us the time required for each of the various elements of developing that sales potential, that amount of sales on your books?

A. I wish I had such a crystal ball. I really don't know. I'm giving you an educated guess when I say that we could —or it was estimated that we could get it up to 8,000, to 10,000 or 12,000 tons.

Q. What was the problem that you—

Mr. DeLone: I don't think the witness has finished his [fol. 1498] answer.

Mr. Freed: All right, go ahead.

The Witness: Now each of the elements, what would be required in each of the elements of those sales and time-wise would depend upon a number of factors, not the least of which would be the ability of the individuals to whom you assigned this responsibility for sales. If you had to take a greenhorn why it would obviously take longer than if you had an experienced person. Conceivably you could go out and hire somebody away from somebody else that had the contacts and had the knowledge of the field, in which case it would accelerate it. It's a toughie to answer, really, to give you anything with any meat on it.

By Mr. Freed:

Q. Did you make any efforts to explore the possibility of hiring experienced sales personnel?

A. Not to my knowledge.

Q. What would a salesman have to know in order to be able to approach a pulp or paper company in the southeast to sell it Pennsalt sodium chlorate?

A. He would have to know the needs of the customer,

of the prospect. He would have to know how to cultivate that prospect in terms of generating confidence in him and his company. When I say "him" I'm speaking of the salesman now. He obviously would have to know his product and what it would do specifically for that customer or [fol. 1499] prospect.

Naturally he would have to have some assurance that if he got the sale he could deliver the material of a good quality.

Q. Did Pennsalt at this time, in late 1959, enjoy the confidence or the good reputation in the pulp and paper industry of the southeast?

A. I wouldn't say so. There would be no reason for their knowing much about Pennsalt. We are a relatively small company, as you know.

Q. I wonder if you would compare for us in your view the difference in Pennsalt's ability to sell or not to sell sodium chlorate in the southeast, and the ability of Pittsburgh Plate Glass to sell sodium chlorate?

A. I don't think I could make the comparison because I don't know much of anything about Pittsburgh Plate Glass' ability.

Q. Does your Company compete with Pittsburgh Plate in the chemical business?

A. Uh-huh.

Q. And your organization is on top of the competition and the competitive relationships insofar as Pennsalt and Pittsburgh Plate are concerned?

A. Those products which are sold by Pittsburgh Plate, the Chemical Division, I assume you're referring to, and Pennsalt are handled largely by George Grogan, who is [fol. 1500] the General Sales Manager of Industrial Chemicals East.

Q. Have you had occasion to discuss recently with Mr. Grogan what the prospects are for competition from Pittsburgh Plate in light of the announcement of its sodium chlorate plant?

A. No, no.

Q. Has this been a subject of discussion to which you have been a party within the past few weeks since your Company learned of their entry into the business?

A. There has mention been made of Pittsburgh Plate

and its announcement, that is, its announcement. I believe they said something about a 15,000 ton plant, if I'm not mistaken. I think there was an article in Chemical Week or some such trade journal about it. It wasn't Chemical Week, it was one of the newspapers.

The conjecture on our part is, how in the Sam Hill they can justify a plant of that size.

Q. And are your questions about their ability aimed at the return on investment problem or the selling problem?

A. Return on investment primarily. It's conceivable that they are so much better at producing the product that they can make a less expensive product than we can. I doubt it, but that's a possibility.

Q. How about the size of Pittsburgh Plate's chemical operation compared with Pennsalt? Are you familiar with [fol. 1501] the relative size?

A. Oh, generally. We're peanuts compared with Pittsburgh Plate Glass.

Q. In chemicals?

A. I think so, even in chemicals.

Q. Now, again, would Mr. Grogan have that information in detail about the relative size of the competitive efforts of your two companies in chemicals?

A. I don't know whether anybody can specifically indicate how much their chemical sales are. I don't recall whether their annual report breaks down their chemical sales. If it does, why any one of us could determine it. I have the general impression though that they are substantially larger than we are in chemical sales.

Some companies like Union Carbide in their annual report break it down, but others seem less inclined to do so.

Q. In the return on investment studies which your Company made of a sodium chlorate facility in the east, frequent mention is made of the possibility of borrowing 50 per cent of the fixed capital at 6 per cent.

To your knowledge, what was the basis on which those borrowing estimates were made. Who, and by that question I mean from whom could money be borrowed at 6 per cent?

[fol. 1502] A. You're talking about borrowing by a joint company?

Q. No, sir, I'm referring to the investment studies in

which the only information furnished was 50 per cent fixed capital furnished by Pennsalt, 50 per cent fixed capital borrowed at 6 per cent. There was no reference in these studies to a single or joint venture.

Mr. DeLone: Would you identify one of the studies so that we know what you mean? I do believe it would facilitate an intelligent answer to the question if the witness might see it.

The Witness: I don't recall actually any discussion of borrowing 50 per cent, that is Pennsalt borrowing. The reason for that is that the net effect would be the same as if we put all our own money in it.

By Mr. Freed:

Q. In what way would the net effect be the same?

A. Well, you would have a total investment, Pennsalt's total investment, whether you borrowed the money from a bank or if you borrowed it from your share owners, or what have you, it would still be the total investment required for the plant and the working capital, so that it would not help the return on investment any to borrow it.

Q. Perhaps it would be better for us to defer further discussion on investment return until we do hit the studies. [fol. 1503] Is it a fact, however, that Pennsalt did not attempt, prior to the time it decided an a joint venture, did not attempt to finance a sodium chlorate facility by bank funds?

A. That is correct.

Q. And is it also a fact that Pennsalt did not attempt to negotiate with any other chemical company, or any other chemical selling agent with a view toward having such third parties distribute a portion of the output of Pennsalt's contemplated sodium chlorate facility?

A. To my knowledge, no. Incidentally that sounds like an ambiguous answer, the way you worded your question. It is a fact that we did not, so perhaps the answer should be "yes" in context with your question.

Q. Thank you, sir.

Mr. Drake, turning back to the inception of Pennsalt's interest in exploring the possibility of building a sodium chlorate plant in the east, the documents furnished to the

Plaintiff indicate that consideration of this facility goes back at least to 1951.

However, I believe you testified that your position as Executive Vice President and in the top management of Pennsalt goes back to '55, and I would like to direct your attention, sir, to a document, a memorandum dated February 18, 1955 from you to Mr. Woodard, which I would [fol. 1504] like to have the reporter mark as Plaintiff's Drake Exhibit 4.

(The document referred to was marked Plaintiff's Drake Exhibit No. 4 for identification.)

In this document you quote Mr. Grogan as indicating that Pennsalt should be able to sell about 5,000 to 8,000 tons of sodium chlorate out of Calvert. Was Mr. Grogan right, as you saw it then?

A. You mean do I think this is a reasonable estimate?

Q. Yes, sir.

A. I have no reason to feel that it isn't or wasn't a reasonable estimate.

Q. At the time Mr. Grogan made this estimate, do you recall any discussions with Mr. Grogan, or anyone else in the Pennsalt eastern operation with respect to the sales potential of Pennsalt in the sodium chlorate market at that time?

A. Specifically no. I think this was undoubtedly the result of a question that was put to George Grogan, the answer to which he gave sort of off the top of his head. I don't think it's the result of any study on his part that I am aware of.

Q. In the studies which followed this February 1955 document, was it assumed that Pennsalt in fact had a sales potential of 5,000 to 8,000 tons of sodium chlorate, as you [fol. 1505] can recall?

Mr. DeLone: Isn't that something, if you're going to the studies, each study will better reflect than a general question like that?

By Mr. Freed:

Q. If you know the answer, Mr. Drake, I would appreciate your telling us.

A. I think it would be reasonable to assume that at that time with the business conditions as they existed, that, well, I would put it, there ought to be something the matter with us if we couldn't sell 5,000 to 8,000 tons. That's not saying how soon we could sell it.

Q. Do you recall any discussion with Mr. Grogan with respect to how soon this——

A. No, I don't.

Q. —this sales potential could have been achieved?

A. (Shaking head.)

Q. Do you know the users to which this estimate referred?

A. No, sir.

Q. Did any information subsequently come to light that would leave you to question the 1955 estimate as being valid at that time?

A. I wouldn't think so, no.

[fol. 1506] Q. On February 25, 1955, Mr. Grogan sent a letter soliciting sales of sodium chlorate to Champion Paper Company at Houston, Texas. The letter is from Mr. Grogan to Mr. Malcolm MacDonald, Director of Purchases of Champion.

I would like the reporter to mark this document Plaintiff's Drake Exhibit 5.

(The document referred to was marked Plaintiff's Drake Exhibit No. 5 for identification.)

A. If it won't confuse you, you could use D-11 as Drake. Perhaps you just mentioned it.

Mr. Freed: I think for means of reporting we had better continue.

By Mr. Freed:

Q. Are you familiar with that letter, sir, the letter from Mr. Grogan to Champion?

A. I've seen the letter I'm sure.

Q. You will note that in the last paragraph of the letter Mr. Grogan refers to Pennsalt's contemplated plant at Calvert City.

Do you recall the circumstances that preceded the sending of this letter by Mr. Grogan to Champion?

A. Not specifically. Again it's conjecture, but I would imagine that this was one of the many to which I have referred in the past, go-arounds we had on what we could do with sodium chlorate in the east.

[fol. 1507] It is probably an effort to determine whether we could get and begin to build some tonnage. I think this was being sold out of the Portland plant, as I recall it. You will notice, I think, as I recall it, this indicates that we were only interested in the Houston plant. The Canton plant was a little far afield economically from Portland.

Q. Do you recall whether this letter was written as a part of a decision to exploit your sodium chlorate sales potential east of the Rocky Mountains?

A. I would say it was more of an exploratory effort than it was the exploitation of something which we actually didn't have.

Q. Can you recall any other efforts taken at the same time to explore your sodium chlorate market potential?

A. Again specifically, no, no, I don't.

Q. Is the reference here to the contemplated plant at Calvert City a reference which was made as a result of any decision by management to suggest to the paper industry that Pennsalt was about to embark, or was seriously considering embarking on a sodium chlorate eastern production facility?

A. Again I would say that this undoubtedly was an exploratory effort to determine what we might be able to do in the marketing of chlorate in the east.

[fol. 1508] Now the reference to a contemplated plant at Calvert, I'm fairly certain was undoubtedly to give some indication to the prospect that—and that's why I said contemplated plant—that if we were able to develop enough business to warrant it economically, why we might build a plant a Calvert City, which I think is very definitely in line with this whole area from the '50's on, of again saying, why can't Pennsalt justify a plant in the east.

Q. Beginning at least as early as the date of this letter, did Pennsalt put forth its best efforts to develop a sodium chlorate market potential east of the Rocky Mountains?

A. I'm afraid I would have to answer that, no.

Q. Can you explain your answer, sir?

A. It harks back to what I said this morning about the

relative emphasis that was placed on marketing and the technical phases of our business during this and prior periods. I am not sure until later in the 50's that we really came to grips with the marketing end of chlorates in the east. I mean, it was sort of a drib and drab type of thing and I think this is a good example of it. It isn't the ideal way to do it, incidentally, but nevertheless I think that's the way it was done and that's why I used the word "unfortunately."

[fol. 1509] Q. Turning now, Mr. Drake, to a memorandum written by you to Mr. H. C. Land on March 23, 1955, which the reporter will mark Plaintiff's Drake Exhibit 6.

(The document referred to was marked Plaintiff's Drake Exhibit No. 6 for identification.)

A. May I take a gander at that?

Q. Certainly.

(Handing document to the witness.)

Mr. Freed: I might say for the record that those exhibits which the Plaintiff shows to this witness and any succeeding witnesses may, in many cases, have markings in either red pencil or black pencil. We would hope that by agreement with the counsel for the parties that by the time of trial we would be able to have a set of documents that were free and clear of any extraneous markings, and for the time being the markings will only be for the purpose of aiding the witness in focusing on the specific portions.

Mr. DeLone: I would certainly trust that before any of these documents are used the markings which are of counsel will be removed from them.

By Mr. Freed:

Q. Directing your attention, Mr. Drake, to the second paragraph of this memorandum, the statement is made by you to Mr. Land:

"Knowing that you have coming up fairly substantial [fol. 1510] demands for sodium chlorate to the paper industry, I imagine you will want to make arrangements with Fred Shanaman or with someone else if he doesn't have it available, to supply those requirements."

I wonder, Mr. Drake, if you could tell us about the fairly substantial demands for sodium chlorate to which you were referring?

A. I certainly draw a blank on that.

Mr. DeLone: I take it from your answer you don't know; is that right?

By Mr. Freed:

Q. Can you recall where you might have gotten the information at this time concerning fairly substantial demands?

A. My difficulty is that I don't know what I meant by fairly substantial, for one thing, and secondly, I don't know where it was, where the demand was, I mean more specifically than what is stated here. That's the part that——

Q. Are there any records in your own files or in Company files that might enable you to go back to the time when you wrote this memorandum and when these demands were fairly fresh in your mind to determine just where they were and how large they were?

A. The most I can say on that is that this may have tied in with a prior note, I think it was prior, the one of the [fol. 1511] Champion, was it, the paper company there in Houston and Canton. I may have been thinking in terms of fairly substantial as, oh, a couple thousand tons a year or some sort like that. I don't recall anything. I think I should if I had my wits about me, recall any really substantial, or substantial in terms that we talk about it today, demands. The most I can reconstruct here is that this may well have referred to the one or two efforts that we were endeavoring to make for exploring this field.

Q. The only effort that we have a record of so far is with Champion.

Can you recall who the other accounts might have been?

A. No, I don't.

Q. Do you recall whether Champion responded favorably?

A. I don't even remember whether they bought any material. That is the irritating part of it.

Q. When you referred to demands, do you usually refer

to a demand by a customer to Pennsalt, or would you ordinarily have something else in mind?

A. Oh, I think you usually refer to demand as a market demand. Perhaps demand is not as good a word as potential, rather than demand. I think the upshot of it is, I don't recall that anything ever developed substantially here as a demand or a requirement.

[fol. 1512] Q. At the time you wrote this memorandum, as you can judge by the language that you used, is it your testimony that there likely were demands from particular customers, or that this was simply a promotional effort on your part of more solicitation by Pennsalt in the sodium chlorate industry?

A. My guess would be that after a discussion, one of our numerous ones, of why we couldn't do something with chlorates in the east, probably with Hugh Land, we agreed that we would go ahead and see what could be done to develop a market; how much of a job it would be to do it.

I think an example of it is the effort with the Champion organization. Apparently not too much developed from it, because I certainly don't recall that any great potential was unearthed for Pennsalt at that time.

Q. Does your company normally maintain records to show the requests of customers for particular products?

A. I would think that probably would be one of the first files that would be disposed of as irrelevant on the part of a secretary in her general concern about how much room she has got in her files.

Q. Would the files, at least back in March of 1955, ordinarily no longer be available in your company?

A. I can't say really; ordinarily I don't know. It's conceivable, though, that that would be one of the things that [fol. 1513] they wouldn't hang onto, particularly would that be so if we made a study and again, as we did so many times, decided not to do anything about it.

Q. If the company still maintains records to back up your statement here of fairly substantial demands, where in the company would those records be?

A. Oh, they could be either in the Industrial Division East—probably that's where they would be if they would be anywhere.

Q. If those records are not available today or if the records which are available fail to disclose the basis for your statement here, you have no present recollection of the events and the contacts with customers and the conversations within the company which led you to write this particular memorandum to Mr. Land, is that correct?

A. Honestly, I don't. I think you might be able to get a clearer picture of that possibly from Land or Grogan, who will obviously be closer to it.

Q. Do you have any recollection, sir, of the result of this memorandum, of the action, if any, taken by Mr. Land?

A. No.

Q. I direct your attention now, sir, if I may, to a memorandum dated April 28, 1955 from A. S. Woodard to G. A. Grogan, which the Reporter will mark Plaintiff's Drake Exhibit No. 7.

[fol. 1514] (The document referred to was marked Plaintiff's Drake Exhibit No. 7 for identification.)

This document, sir, which I will show you in a moment, refers to a letter that had previously been addressed to you and talks of a review which has been directed towards determining the possible return to Pennsalt Company where the fixed investment provided by a second party at a nominal rate of return, and 6 per cent is referred to there, and I wonder if in inspecting Exhibit No. 7 you can recall the circumstances which led you to direct that review on those particular terms?

A. The only thing that I can think of that that might refer to is that we may have been thinking of the possibility, even at this stage, of a facility for chlorate which could be converted in whole or in part to perchlorate as meeting the demands of one of the companies like Aerojet or one of the others where at that time they estimated they would require, I think it was about this time, that would require substantial quantities of perchlorate.

Again I am trying to—this is in part conjectural. It is conceivable that we thought, well, now if we could get Aerojet to invest or lend money to this project possibly we could work it out so that we could justify the plant and in turn satisfy some of their needs.

To my knowledge it was never pursued further than just [fol. 1515] this stage of the investigation.

Q. Is Aerojet the only company that you are testifying might have been in your mind at that time?

A. It's all I can think of. There may have been others, but I cite that as an example because I know there was a flurry for a while of contemplation of Aerojet requiring substantial quantities of ammonium perchlorate.

Q. Were there any discussions held with Aerojet, as you recall?

A. I don't think so. Now, there may have been on the West Coast, but not in conjunction with this.

When I say there may have been on the West Coast. I am sure that our people working out of Tacoma have had numerous contacts with Aerojet, that is, particularly since we have been producing perchlorate up there.

Q. Exhibit No. 7 refers to a possible return on an investment of between 40 to 60 per cent, if the other estimates in the document are borne out; can you recall specifically why this wasn't acted upon?

A. In the first place, I am sure that our financial people said I was cockeyed to think that that would be the kind of a return that you could get on a project where you were merely borrowing money for Pennsalt.

I can hear them now saying, "You're just kidding yourself." It's money available to Pennsalt. The return on the [fol. 1516] project is the same whether you borrow it at 6 per cent or whether you invest it as funds which we already have available.

Q. When you say you can hear them now, are you again simply speculating on the response, or can you specifically recall?

A. I am speculating on the response.

Q. In the early part of 1956, do you recall receiving from Fred Shanaman an appropriation request for the expansion of your sodium chlorate plant in Portland?

A. I think it was about that time. We had several in the Northwest.

Mr. Freed: I would like the Reporter to mark this document Plaintiff's Drake Exhibit No. 8.

(The document referred to was marked Plaintiff's Drake Exhibit No. 8 for identification.)

By Mr. Freed:

Q. I would then ask you, Mr. Drake, if you can recall the sales basis on which Mr. Shanaman requested expansion of the plant from a capacity of 7,848 tons to 10,560 tons per year?

A. In the first place, this is an incremental expansion, you know. It undoubtedly is based on projections that Fred Shanaman made for additional sales to the pulp and paper industry in the Northwest. It may have also been included [fol. 1517] in an effort which was then beginning, or I guess had been underway even at that time for the use of sodium chlorate in the uranium industry.

There are several companies, the names of which I fail to remember at the moment, up in the Northwest which were interested in fairly sizeable quantities of sodium chlorate. I am speaking now of the uranium industry, and my recollection is that this undoubtedly in part at least tied in with that demand as well as a gradual growth of the pulp and paper industry.

Q. Can you recall whether any portion of the increased capacity was for the purpose of producing sodium chlorate to be used for further exploration of the eastern market?

A. Specifically, no, I don't think so.

Q. If sales for that purpose had been contemplated, would they ordinarily be a basis for the expansion of a plant?

A. For exploratory work, I wouldn't think so.

Q. Do you recall, Mr. Drake, whether that particular expansion was approved at that time?

A. I think it was. We had several in there, in that period.

Q. Do you recall, sir, a discussion in the latter part of June 1956 with Mr. George T. Collins with reference to the possibility of locating a sodium chlorate plant in Puerto Rico?

[fol. 1518] A. Yes, sir.

Q. Do you recall any other people being present during that discussion?

A. No, I don't. George Collins, knowing of our interest

in chlorate in the east and our desire to supply in the east, and George Collins, having way back in the history of the company been Head of Market Research—this is some years back—and then at that time having been in charge of the International Division as well as being an imaginative individual, proposed that as a solution to our efforts to put a plant in the east: might we not consider Puerto Rico with its tax advantages, its proximity to the southeast?

I think he went so far as to determine power rates and possibly even salt costs for Puerto Rico.

In that light, most of the other proposals on sodium chlorate in the east died its natural death.

I think one of the reasons, undoubtedly—I don't recall the return on investment figures at the moment, but to supply the southeast from an offshore plant location, to my mind, wouldn't be ideal, and undoubtedly there are other reasons for not giving it much thought.

Q. Was any consideration given at this time to the ability of Pennsalt to market the output of such a plant, if it were feasible to construct, and profitable to construct one? [fol. 1519] A. I think, as I indicated this morning, really the only time that I know of that we would come really to grips on Pennsalt's ability to sell chlorates in the east was when we started our program in '57 to decide once and for all whether we were going to fish or cut bait, as I expressed it.

Q. In other words, the efforts prior to 1957 were solely economic evaluations; beginning in 1957 you began to take into account the problem of selling what you produce. Is that correct?

Mr. DeLone: I don't think that is a fair statement. In light of all the testimony on the subject, including references earlier which he has already covered about some exploratory efforts and particularly the document that you have shown the witness, I don't see how you can try to capsulize all that testimony into a conclusion like this, which is inconsistent with what has gone before.

By Mr. Freed:

Q. Directing your attention to the question of estimating Pennsalt's market potential, Mr. Drake, was there a time prior to 1957 when in your recollection the company carefully appraised its ability to sell sodium chlorate in the east?

A. In my estimation, prior to the study in '57, and I [fol. 1520] can be wrong on this, but in my estimation the efforts on the part of Pennsalt to determine whether or not we could sell in the southeast were rather feeble.

They certainly were inadequate.

Q. Toward the end of 1956, Dr. LaLande addressed a memorandum to you dated November 20, 1956, which states as follows:

"Because of other assignments, we have not yet started an analysis of this product"—subject of the memorandum is: "Sodium chlorate—Puerto Rico"—"your comments on its relative importance would help us in scheduling our work."

I would like the Reporter t mark that document Plaintiff's Drake Exhibit No. 9.

(The document referred to was marked Plaintiff's Drake Exhibit No. 9 for identification.)

A. That's all there was in the memorandum, wasn't it?

Q. I wonder if you can recall your response to Dr. LaLande with regard to relative importance of the project?

A. I don't think we ever made it. I don't think he ever went through with an analysis of the project. I don't recall it. If he did, I certainly didn't give it priority, because of the point I made with you earlier.

Q. Do you recall discussing with Dr. LaLande the "relative importance" that you placed on the Puerto Rico [fol. 1521] project?

A. Specifically, again, no, but in light of what I have said earlier and what has transpired since, I am fairly certain that I said either, forget it, or, don't give it too high a priority.

Q. What were the reasons for that decision?

A. Again, primarily I think we made some preliminary studies of salt costs and power costs, plus the fact that this being an offshore operation didn't appeal to me.

Q. On December 17, 1956 you sent a memorandum to Mr. Shanaman commenting on a newspaper announcement that morning of Hooker's expansion of its Mississippi plant.

I would like the Reporter to mark this Plaintiff's Drake Exhibit No. 10.

(The document referred to was marked Plaintiff's Drake Exhibit No. 10 for identification.)

Do you recall reading the announcement of the Oldbury expansion?

A. I recall the memorandum very vividly. I referred to it this morning as this is what sparked our deciding to take a last look at sodium chlorate in the east.

Q. In other words, it was this announcement that triggered the serious study that Pennsalt undertook?

A. Right.

Q. Focusing your attention on the situation in the latter [fol. 1522] part of 1956 when, as indicated by this memorandum, Hooker had twice expanded or planned expansion of its then existing plant by a total of 10,000 tons, can you compare for us Hooker's ability to anticipate the sale of 10,000 tons, 10,000 additional tons of sodium chlorate as against the ability that Pennsalt might have had at that time?

A. I think very easily Hooker—I think, as you have indicated, this was an expansion, they were already established—I think it was Aberdeen, Mississippi, as I recall the location of the plant—they obviously had distributing facilities established, so they were talking about taking an already existing marketing group and expanding the efforts of that group, which, just like an incremental expansion of a plant, is much easier than building a whole new facility or starting with a new marketing group.

I think in that respect, the contrast is quite clear.

Mr. Freed: I wonder if we could take a five minute recess now.

(Recess.)

By Mr. Freed:

Q. Mr. Drake, with reference to your last answer concerning Hooker's advantages over Pennsalt in terms of selling the 10,000 tons of capacity then being added, were Hooker's advantages any different than those advantages [fol. 1523] which your company would encounter any time it was attempting to break into a field or a market in which other producers were already selling, that your company had not previously served?

A. I think I in part, at least, answered that question with the advantages that I stated accrued to Hooker being already established there with the marketing group. It was an extension of their marketing group rather than the creation of a new one, plus the fact that they were already recognized in the area as a producer and supplier of chlorates.

I think that is a distinct advantage.

Q. My question, sir, was directed to determining whether that advantage which Hooker had over you is any different than the advantage which an existing producer always has over a potential or an interested entrant?

A. I don't think it was any different.

Q. Is it true then that the risks which Pennsalt would face in attempting to compete with Hooker in the eastern market in the latter part of 1956 were the same risks which a newcomer normally can expect to encounter, the risks of competition when he tries to break into a market which is already served by other producers?

A. As a general statement, I think that is correct.

I think there are many factors, however, that determine the degree of risk such as the timing, the market potential, [fol. 1524] just to cite a couple.

Q. In response to your memorandum to Mr. Shanaman commenting on the Oldbury announcement, Mr. Shanaman wrote you on December 20, 1956 a document which the reporter will mark as Plaintiff's Drake Exhibit No. 11.

(The document referred to was marked Plaintiff's Drake Exhibit No. 11 for identification.)

In this memorandum Mr. Shanaman refers to the fact that:

"It has been an acknowledged fact that we perhaps have as much advanced information concerning the manufacture of sodium chlorate as anyone else."

At that time, was this true, did Pennsalt have as much advanced information on sodium chlorate manufacture as anyone else?

A. That was purely conjectural on Fred's part. He naturally felt that way because he had been responsible for producing chlorate.

Q. In terms of Pennsalt's reputation in the industry at the time, did you have any knowledge when you received this memorandum of Pennsalt's reputation insofar as sodium chlorate manufacturing technology was concerned?

A. No.

Q. In his memorandum to you, Mr. Drake, Mr. Shanaman [fol. 1525] suggests the creation of a committee to investigate the sodium chlorate production and marketing capabilities of Pennsalt, and he makes the remark in the next to the last sentence of the memo:

"Of course, it could be that we have been seeking a much higher return for our dollars invested by comparison with the rate our competition has been willing to accept."

Do you have any comment on that observation which I have just quoted by Mr. Shanaman?

A. Yes, simply this: that Mr. Shanaman in making that statement is no different than any other division manager or individual, for that matter, who has proposed a project a number of times and had it turned down on the basis of its inadequacy in terms of return on investment.

It's a very logical question for the proposer to raise. Unfortunately he can't decide whether it's an adequate investment, whether, the return is adequate or not. I have to do that.

Q. At the time Mr. Shanaman made this observation to you, what was his position in the company?

A. He was the Vice President of the Company, a Member of the Board of Directors, and Head of the Western Division, and he was President of the Western Division. I think it was still then a wholly owned subsidiary.

[fol. 1526] Q. Was Mr. Shanaman privy to the investment policy and the application of that policy by Pennsalt?

A. I want to be sure I understand what you mean.

Q. Was Mr. Shanaman in a position to know what the investment policy of Pennsalt was and what the manner was in which Pennsalt applied that policy in various projects?

A. Yes, sir.

Q. In light of Mr. Shanaman's position, was his question no different than that of any division manager who was simply in the ranks of the company and was not a member of the board and of top management?

A. Certainly his question raised in light of his position in the company bore considerable weight. I would say no greater weight however than I would place on any division manager, even though the other division managers may not have been members of the board of directors or even officers of the company.

He at that time, I would add, was also a senior, considerably senior to the rest of us in age.

Q. At the time Mr. Shanaman made this statement, was his thinking on the matter of return on investment generally out of accord with that of the rest of the board of Pennsalt?

A. May I answer that in terms of, out of accord of the rest of the management of the company rather than the board?

[fol. 1527] Q. Oh, certainly.

A. The reason for that being that the board in the way we are so constituted doesn't really get in too deeply in the matter of return on investment, to the same degree at least as the rest of the management group does.

Q. May I interrupt you there, Mr. Drake, simply to ask if you would define the management group in terms of the the individuals who were members of it at this particular time?

A. We have had, starting in about '55, what we call a Management Council which consists of the heads of the operating divisions of which Mr. Shanaman was one, and the heads of the staff departments such as financial, technical, personnel and the like. That is the group that has really been responsible for the operations of the company.

You will notice that I used the term "Council," and they serve as that to the President.

Q. I appreciate your explanation of the management group, but now I wonder if you can go back to the original question about the relationship between Mr. Shanaman's attitude toward the return on investment policy and that of the other members of the Council.

A. Fortunately we have a divergence of opinion among the Council members. It would be very unfortunate if we [fol. 1528] didn't. By and large, I wouldn't say that he was not in accord to any greater degree than any other specific individual on the Council on a specific matter.

When I say a "specific matter," he is referring here to sodium chlorate which was one of his babies and he would have liked to have seen it expand.

Q. Do you recall having any discussion with Mr. Shanaman about this particular observation?

A. No, I don't.

Q. Addressing yourself to the substance of his remark that:

> "It could be we have been seeking a much higher return compared with our competition"

can you comment on that?

A. Yes. If you were to look at the return on investment of Pennsalt compared with those companies with whom we compare ourselves regularly in this matter of return on investment on return on shareholders' equity, which is what we use more, you would find that over the years Pennsalt had lagged behind the return on investment of most of our competitors.

When we had our change in management in 1955, one of the objectives that we established for ourselves was to improve that return on investment or return on shareholders' equity. I am happy to say that some slight improvement has been made.

[fol. 1529] You must recognize, however, and I think this has a real bearing on this whole subject of Pennsalt's interest in the sodium chlorate field solely or jointly, that we are still lagging behind the average of our industry in terms of return on shareholders' equity, although we are making some progress to narrow that gap.

So long as we have projects coming before us which meet the criteria for investment and there is a demand for dollars within the company for these various projects, those that don't meet the criteria naturally will fall by the wayside, usually.

Until we run out of projects, and we are far from it, I see no reason for deviating from our investment policy as a general statement.

Q. Who were the companies with which Pennsalt compared itself on the matter of return on investment?

A. I would refer you to return on shareholders' equity; it's a better reference, I think, because we have to keep our figures that way.

There are, I think, about 17 in number. I don't know whether I have the latest one here or not (producing document).

Perhaps, to save time and so on, the best thing would be to give you this list, if you want it. It shows the return [fol. 1530] on shareholders' equity for each of these companies from 1950 on through 1960. It shows the averages and it is grouped in those companies with sales under 100 million, those with sales of 100 million to 400 million, and those with sales of over 400 million.

As you can see from this, even with Pennsalt's improvement, which in 1960 came up to 8.0 per cent, the average of the other companies still was 11.0 per cent.

It may be significant also to comment that at about the time Mr. Shanaman made the statement to which you refer in his memorandum of December 20, 1956, our return on shareholders' equity for the previous year, which was the last figure we had, was only 6.8 per cent.

Furthermore, we had a very heavy investment program facing us and we recognized, even in 1956, that in 1957 our return on shareholders' equity would be even less than the figure I just gave you; in fact, it went down to 5.6 per cent.

I think with that background you can perhaps more clearly understand why we were not about to reduce our requirements for investment, particularly in light of the number of projects that we had available on which we could meet the investment criteria.

Q. Might we, for convenience, in order to avoid going [fol. 1531] through the list on the record, might we mark

that as Plaintiff's Exhibit No. 12 or Defendant's Exhibit No. 1?

Mr. DeLone: I have no objection.

(The witness handed the document to Mr. Freed.)

Mr. Freed: I would ask the Reporter to mark Mr. Drake's paper as Plaintiff's Drake Exhibit No. 12, which is identified by the title: "Net Return on Shareholders' Investment —Pennsalt versus Competition", and there is a date in the lower lefthand corner of 5/3/61.

(The document referred to was marked Plaintiff's Drake Exhibit No. 12 for identification.)

By Mr. Freed:

Q. Mr. Drake, when you use the term "return on shareholders' equity", does the percentage figure for that designation correspond precisely to the figure we have been using today, "return on investment"?

A. No.

Q. Is there a conversion that we can use in order to translate a return on investment of 30 per cent to a per cent of return on shareholders' equity?

A. Not readily, no.

Q. No?

A. You can't take an individual project and relate it to shareholders' equity; that's why we use the return on investment as the yardstick, but if you have enough projects [fol. 1532] which meet the return on investment requirements, it will automatically bring up the return on shareholders equity.

Q. But in order to follow up Mr. Shanaman's observation to you in Exhibit 11, is there any way in which we can determine whether the rate of return required by Pennsalt in connection with its sodium chlorates study was higher or lower than that of the competitors listed on Exhibit 12?

A. No, no. This is purely conjectural on Fred's part. He is raising the question, actually. I would say one thing further, that I am not concerned with what our competitors' criteria are. We are responsible for Pennsalt.

Q. Do you know whether Pennsalt in its sodium chlorate project was insisting on a return on investment that was

higher than that which its competitors were receiving or had projected in their own sodium chlorate undertakings?

A. Specifically, no.

Q. Do you have any information that would reflect on a comparison of Pennsalt's return on investment in sodium chlorate in the east and the return of its competitors?

Mr. DeLone: Could I have that question back?

(The reporter read the question.)

Mr. DeLone: If you understand it. I'm afraid to say I don't.

[fol. 1533] The Witness: Well, it's very easy to answer it, no.

By Mr. Freed:

Q. At the time Mr. Shanaman wrote his memorandum of December 20, was Mr. Land a member of the Management Council?

A. Yes.

Q. I refer you next, sir, to Mr. Land's memorandum to you dated December 20, 1956, referring to Mr. Shanaman's memorandum.

Would the reporter mark this as Plaintiff's Drake Exhibit 13?

(The document referred to was marked Plaintiff's Drake Exhibit No. 13 for identification.)

Mr. DeLone: I think you said dated December 20th, it was December 27th.

By Mr. Freed:

Q. In the first line of Exhibit 13, Mr. Land states that he agrees that:

"I agree wholeheartedly with Mr. Shanaman's comments of December 20th."

Can you recall having any discussion with Mr. Shanaman, Mr. Land or anyone else concerning the particular observation of return on investment that we discussed a little while back, solely with reference to Mr. Shanaman?

[fol. 1534] A. I am sure that in the meeting we called early in January of '57 to discuss this whole matter, undoubtedly the subject of return on investment policy came up. Specifically I don't recall any discussion with Shanaman or Land singly or together on that one subject.

I think it might be well to also observe, at least, that in agreeing wholeheartedly with Mr. Shanaman's comments of December 20th, I would construe this to mean that primarily he was agreeing that we either ought to determine why we can't do it and correct the reasons why we can't do it, or forget about it. And I am not referring solely to the policy on return on investment. In fact, I think that was a minor point in Mr. Shanaman's memorandum. He raises it, it's a conjecture on his part. Possibly, I think is the wording, our return on investment is higher than our competitors. I think the gist of his memorandum and that to which Land agreed was, let's get on about this whole subject of sodium chlorate.

* * * * * * *

[fol. 1535] Q. Mr. Drake, I believe that you testified this morning that it was not until early in 1960 that you heard that Olin had been contemplating the construction of the sodium chlorate plant in the east, and I wonder if you would reconcile for us that testimony—if I have recapitulated it correctly—with the statement which Mr. Land made in his memorandum to you in the latter part of 1956?

A. Not having the benefit of the discussions between Olin and whoever it was in Pennsalt who discussed this in [fol. 1536] 1956 it would be very difficult for me to reconcile the two statements, other than to say that obviously, as is indicated in here, there must have been a discussion on the general subject of building a chlorate plant in '56, as reported here.

Apparently I did not attach enough significance to it to have it make an impression on me, and hence my answer this morning. I still don't know what the gist of the discussion on building a chlorate plant was, and I think an elaboration of that would be necessary before I could attempt to reconcile the two statements.

Q. As you read this particular sentence, sir, does it con-

vey to you a conversation between someone in Pennsalt and someone with Olin, which conversation involved an exchange of data between the companies with regard to cost figures, capital and manufacturing?

A. As I say, without knowing what that discussion was I really can't. I think it would be improper to conjecture just what that conversation was.

Q. I would like next to refer to a memorandum dated January 22, 1957, W. Cooper Willits, W-i-l-l-i-t-s, to Dr. LaLande entitled, "Sodium Chlorate in the East".

I ask the reporter to mark this as Plaintiff's Drake Exhibit 14.

[fol. 1537] (The document referred to was marked Plaintiff's Drake Exhibit No. 14 for identification.)

Does Exhibit 14, Mr. Drake, reflect your recollection as of January 1957 on the question of the consideration at that time of a joint venture between Pennsalt and Olin as suggested by Point No. 3 in the document?

A. Yes, I think that's correct.

Q. Could you tell us what the discussion was at this meeting in your office with reference to the subject of a possible joint venture with Olin?

A. Well, again, in the exact words used obviously not. It's equally obvious, however, that in an appraisal of our position, as it is obvious to you, it stems from these prior memoranda to which we have just been referring. Olin Mathieson undoubtedly was suggested as a potential joint venture partner.

You will notice that it first states, however, that if a plant cannot be justified in accordance with our capital investment policy, either alone or jointly with a partner such as Olin Mathieson. I think it's important that the first there is alone and the other is an alternative, and my recollection is that Olin Mathieson was cited at that time as an example of one who might be a logical partner in a joint venture if we couldn't justify it on our own.

* * * * * * *

[fol. 1538] Q. Again with respect to item 3 in this memorandum, Exhibit 14, why was reference made to jointly

with a partner, such as Olin Mathieson, as opposed to the other possibility of jointly with a partner such as a bank, or the possibility of borrowing money from a financial source? Why was the possibility of outside financing not considered?

A. Very simply. The leverage that you have got in a joint venture where each partner puts in a minimum of capital and borrows as much as the joint venture can borrow, usually from a bank or an insurance company, that leverage gives you a return on investment on your equity which, in the case of the present Penn-Olin, is roughly a million and a half dollars each, rather than three and a half million dollars each, which would be the case if you had a joint venture and each put up half of the cost.

Now if we were to borrow the money from a bank at six per cent, the total investment would be on our books, the total seven million dollars, and we would estimate our return on investment as the seven million dollars investment rather than a million and a half dollars, which is our investment under the Penn-Olin arrangement.

Q. Is this practice of reflecting the entire capital investment both from company funds and from bank the con-
[fol. 1539] ventional way of corporate financing?

A. Yes, I think that the Internal Revenue Service, and certainly the accounting people, won't—I'll put it the other way—insist that you show the total investment on your books, even though you have borrowed a portion of it. In a joint venture, however, where the joint venture borrows the money, it not being a wholly owned subsidiary, it is not required to show those borrowed funds on the consolidated statement of the company, that is the parent company or companies.

I am sure you can get a clearer understanding of that from a person who is an accountant. I am not.

Q. In order to make the record to be clear, or for counsel for the Government to be clear with respect to your last answer, sir, I wonder if we could jump ahead to some attachments to a report which is a memorandum from A. S. Woodard to Dr. LaLande, dated October 31, 1958, labeled, "Sodium Chlorate—Sodium Perchlorate—Calvert."

Perhaps in order to speed things along, I will ask the reporter to mark this Plaintiff's Drake Exhibit 15.

(The document referred to was marked Plaintiff's Drake Exhibit No. 15 for identification.)

Exhibit 15 is a two-page memorandum with six pages of [fol. 1540] attachments.

If you will direct your attention to Table 1, which is premised on a 30,000 ton sodium chlorate plant, 100 per cent Pennsalt capital basis——

A. All right.

Q. —you will not that on line 5 there are given a number of percentage returns on total investment. If you then turn to Table No. 4 premised on the same size plant with 50 per cent of Pennsalt fixed capital and 50 per cent borrowed at six per cent, you will note that there are figures given under Item 7, for return on investment, where the 12-year average return is several percentage points higher, namely 17.1 per cent under Table 4 compared with 13.3 per cent under Table 1.

A. Right.

Q. I wonder, sir, simply using those figures as an example, if you would enlighten us as to why it would not be more desirable, why Pennsalt could not consider borrowing some of the capital required from a bank or other lending institution in order to secure a higher rate of return?

A. First I will repeat, I am not an accountant and I will add also that Mr. Woodard is not an accountant. My understanding of accounting principles, however, is that this would not hold water in terms of return on investment. Now I may be wrong but that is my understanding.

[fol. 1541] Mr. DeLone: When you say "this would not hold water", what are you indicating?

The Witness: Trying to say that the return on investment, because we borrowed 50 per cent of it at six per cent would be greater than if we had all of our own money in it. Now we're talking about gross investment and gross investment is the amount of funds available to the management of a company, from whatever source it is available, with which they are judged, or on which they are judged, as to their ability to show an adequate return. The availability of funds borrowed is no different than the availability of

funds which you may have generated from your cash accumulation and invested in this project.

This is on the basis of return on investment. I'm afraid that is all I can state on that subject.

By Mr. Freed:

Q. Mr. Drake, to go into this a bit more, is it correct that if a project costs $7 million and Pennsalt determines to put up half of that money from its own capital funds and borrows the balance from a bank, that Pennsalt will have remaining to it three and a half million dollars in its capital funds for other investments, a situation which would not exist if it put up all the money itself?

A. Your statement is an accurate statement.

Q. Then taking the next step, doesn't the borrowing of [fol. 1542] capital funds from a lending institution enable Pennsalt to engage in more ventures with its own capital dollars than it would if it didn't borrow?

A. What you're saying is that if a company has borrowing power it can do more things than if it doesn't have any borrowing power.

Q. Is that a correct statement, sir?

A. Certainly.

Q. Where Pennsalt undertakes to engage in a $7 million venture by putting up half of the funds from its own treasury and putting up the other half by borrowing at six per cent from a bank, isn't Pennsalt's total dollar outlay for that project less at the time that you embark upon the venture than it would be if you put up all the funds?

A. You're speaking of that specific venture again, yes, your statement is accurate.

Q. Can you enlighten me as to why consideration of a partner in the form of a bank does not enable Pennsalt to secure a greater return on the amount of cash that it puts out for a venture than would be true if it put up all the money itself?

A. I'll try to enlighten you and I emphasize the "try". If you're talking about a specific venture, as I've said in answer to your two previous statements, your statements are correct, as far as I understand it. And if you only have [fol. 1543] one project for a company, that could hold.

If you have more than one project, however, and demand for more money than is represented by that one project, the yardstick you use in evaluating the benefit to Pennsalt from one project versus another has to assume that your borrowed funds are put into the pot, and the total of your accumulated funds and your borrowed funds are then allocated to specific projects in terms of the total investment in that project. It has to be that way.

Q. I refer you next, Mr. Drake, to a memorandum dated February 21, 1957 from you to Dr. LaLande, which the reporter may mark Plaintiff's Drake Exhibit 16.

(The document referred to was marked Plaintiff's Drake Exhibit No. 16 for identification.)

This memorandum, sir, and correct me if my interpretation is incorrect, indicates that American Potash was planning to build a new sodium chlorate plant at Aberdeen, Mississippi.

Do you recall any conversation that you had with Mr. Shanaman when this information came to your attention with respect to the effect on your own sodium chlorate plant study at this time?

A. The only thing I recall was a certain degree of gnashing of teeth among Messrs. Shanaman, Drake, et al that they had gone ahead with a plant in an area in which we [fol. 1544] were contemplating putting a plant.

Q. Can you illuminate the record as to why Am-Pot, in your view, was able to build a new plant in the east but Pennsalt had found itself unable to do so?

A. That's the very question that we had raised back in the earlier stages when, I think, the question was almost verbatim, what is the matter with us? How can these other people do it and we can't?

Q. The previous question of this kind was with reference to the expansion of Hooker's plant in Aberdeen, Mississippi.

A. Yes.

Q. And I believe your answer at that time referred to the fact that Hooker was already an established producer in Mississippi?

A. That's right.

Q. And was simply expanding its own plant.

It is not correct that American Potash was, as indicated in Exhibit 16, planning to enter the eastern market where it had not previously had a plant located?

A. I think that is quite obvious.

Q. And in terms of the relative abilities of your company and American Potash at the beginning of 1957 to enter competition in the eastern part of the United States in sodium chlorate, can you give us any indicia of comparison [fol. 1545] between the companies that would explain why American Potash could undertake this and why Pennsalt apparently could not?

A. Nothing other than that their sales people must have felt they could sell it and our sales people didn't feel that they could sell it.

Q. If we wish to compare this selling ability of American Potash and Pennsalt in early 1957 in the southeast, would Mr. Grogan be the best witness from Pennsalt or is there someone else in your organization who would have that information?

A. Since Mr. Grogan is responsible for the sales of Pennsalt's industrial chemicals in the east I would think he probably would be the most prejudiced individual that you could touch upon.

Q. But in terms of your own knowledge, can you explain, can you give us any reasons why American Potash was able to realize its competitive aspirations in this market but Pennsalt was not?

A. Possibly American Potash was willing to take a gamble more than we were. That's a matter of business judgment.

Q. And when you speak of "gamble", sir, what would the elements of that gamble be?

[fol. 1546] A. An element, obviously, as I recall it, that that plant is 27,000 tons—is that what that figure was?

Mr. DeLone: That particular memo I don't have. Does it mention it?

Mr. Freed: There is no mention of size in Exhibit 16.

The Witness: As I recall it, the plant is, or the original plant—this is merely recollection—was of that magnitude, and apparently they felt that they could see their way clear over a period of years to build up that capacity, and were willing to wait until that time to do it.

By Mr. Freed:

Q. And faced with the same facts Pennsalt was not willing to do it; is that correct, sir?

A. That's assuming the facts are the same.

Q. Assuming that the market area is the same and assuming that each company had the same opportunity to explore the characteristics of that market, this venture on the part of American Potash represented a decision to go ahead in an area in which Pennsalt did not make a decision to go ahead?

A. That's right.

Q. Made a decision not to go ahead.

A. The only other factor I can think of offhand that [fol. 1547] might influenced their thinking and given them greater encouragement was the fact that they, as you probably know, have been operating an ammonium perchlorate plant for the United States Navy at Henderson, Nevada. Again, chlorate is converted to perchlorate. It's a raw material, in a sense, for perchlorate.

They may have had knowledge which we don't have available or didn't have available at that time to the effect that the demand for perchlorate was going to increase, they having a closer relationship with the Navy, obviously, because of the nature of their operation.

This is purely conjecture but it is conceivable, at least, that that may have added strength to their backbone to go ahead with the plant, whereas we didn't have that.

I emphasize again, however, that is purely conjecture.

Q. Was the American Potash announcement a discouraging factor or a goading factor, as far as Pennsalt was concerned in its own sodium chlorate study?

A. We don't get easily discouraged. I would say, therefore, that it served more as a goading factor, the way you put it, than a discouraging factor. I think you will find that American Potash is a bit larger than we are. You also will find that their management has been relatively well settled [fol. 1548] in their top management jobs, and I think you have to weigh both of those factors in relation to Pennsalt, where the top management is, or was, relatively new in its responsibilities at the time this took place.

I think those are factors which you can't say any or one

of them is the thing, but I think they all contribute to the situation.

Q. I refer you now, Mr. Drake, to a memorandum to you dated March 12, 1957 from Dr. LaLande for the committee, entitled, "Sodium Chlorate Plant in the East, Report Part 1."

I would like the reporter to mark this document Plaintiff's Drake Exhibit 17.

(The document referred to was marked Plaintiff's Drake Exhibit No. 17 for identification.)

Have you recently re-read this document, sir; would you like a moment?

A. I'm just reviewing it right now, thank you.

(Recess.)

A. I was a little hazy I think in regard to American Potash and your question on them. First of all I think I indicated I thought they were larger than we are; they aren't. When I think about it I recognize they aren't. And the other factor which I think is desirable to mention there, because it is a factor, is that undoubtedly their tie-up with [fol. 1549] Solvay, who act as their agents on chlorate, must have had some bearing on their courage, shall we say, in going into the southeast.

Q. When you refer, sir, to their tie-up with Solvay, what do you know about the tie-up which American Potash had with Solvay early in '57 when this announcement was made in the press?

A. Nothing other than, as I understand it, Solvay were acting as sales agents for Potash in connection with their chlorine dioxide process, "their's" being Solvay's.

Q. Referring specifically to American Potash's sales agency arrangement with Solvay, can you tell us why Pennsalt could not have secured a similar arrangement with Olin?

A. I think I covered that earlier in that we weren't willing to take the risk of being that dependent upon an organization which had no financial interest in the venture.

Q. Are you saying that you did not wish that Pennsalt—strike that.

Mr. Drake, would it be correct to characterize your last answer as stating that Pennsalt was not willing to compete with American Potash on the same terms that Potash—no, in terms of the arrangement which Potash had with its sales agent?

A. That's correct.

Q. On page 2 of Exhibit 17 in the first line, Doctor La-
[fol. 1549a] Lande states:

"Pennsalt's important position in sodium chlorate in the northwest has provided us with the manufacturing, selling and technical service know-how required for the merchandising of this product. It would appear logical, therefore, for us to extend our position in the east provided we could be assured of a market potential of at least 15,000 tons per year."

Mr. Drake, first directing your attention to the first sentence of that report, do you agree with Dr. LaLande's statement?

A. Dr. LaLande is making an observation which he is entitled to do. I think in evaluating that observation, particularly in the areas of selling, you should recognize that Dr. LaLande is an eminent scientist and I don't look, with all due respect to Dr. LaLande, to him as an expert in our ability to sell.

Q. With the exception of the word "selling" as it appears in that first sentence, would Dr. LaLande's statement be correct?

A. His statement is correct in terms that we have an important position in the manufacture, the sale and the technical service know-how in the northwest. Now that manufacturing know-how can, and is, being transferred to the east. The other probably could be transferred to the
[1549b] east given time.

The merchandising of this product in the northwest, I would agree with that statement.

Q. In your view, sir, would the selling experience to the pulp and paper companies in the northwest be of value in selling to pulp and paper consumers in the southeast in terms of the relationship between the companies or plants in the northwest and those in the southeast?

A. I think I covered that earlier in saying one of the essentials in selling a commodity of this sort is the creation of a relationship between the prospective buyer and the salesman, encompassing the various areas that I touched upon before, not the least of which is the creation of confidence in the man and the company, all of which takes time.

Q. Are these problems any different from those faced by your company whenever it undertakes to sell a new product to a new class of consumers?

A. In the main, no.

Q. Aren't these factors, sir, the basic ingredients in the competition which your company gives to other companies when it decides to enter into any new business?

A. Yes.

* * * * * * *

[fol. 1549c] Q. The first line on the first page of Exhibit 17 shows that Dr. LaLande's report was on behalf of the committee consisting of himself and Messrs. Karr and More. That's K-a-r-r and M-o-r-e.

Can you tell us, sir, what the position in the company of those two individuals was at the time of this report?

A. Mr. More was the, in effect, the general manufactur-
[fol. 1549d] ing manager in the northwest. Mr. Karr was, in effect, the technical advisor to Mr. Shanaman in the northwest.

* * * * * * *

Mr. Freed:

I would like the reporter to mark this as Plaintiff's Drake Exhibit 18.

(The document referred to was marked Plaintiff's Drake Exhibit No. 18 for identification.)

[fol. 1549e] I call your attention to that part of Mr. Shanaman's memo which indicates disappointment with Dr. LaLande's report because:

"The most important part of the investigation is related to the reasons why the investment should be made or not

made, even if the return was expected to be less than company policy."

I ask you, sir, whether Mr. Shanaman's understanding of the basis on which Dr. LaLande's investigation was undertaken was shared by you in this respect?

A. I think I'd have to answer "yes".

Q. And in the last sentence of the memorandum, Mr. Shanaman speaks of the "influence that a chlorate plant might have on long-range relations with other companies".

Could you enlighten us as to the meaning of that statement? What effect could a Pennsalt chlorate plant have on long-range relations with other companies?

A. Oh, it could have a favorable effect. For example, in those paper mills that now are in the northwest and have operations in the east. I think it enhances Pennsalt's relationship for them to know that we are able to supply them out of two locations. That's one example.

Q. Would you infer any other implication of the effect of a chlorate plant on long-range relations with other companies?

[fol. 1549f] A. I don't get any further reaction to that.

Q. With reference to your earlier answer with regard to the reasons why the investigation was undertaken, did you in fact contemplate that there might be circumstances under which Pennsalt would proceed with a sodium chlorate plant in the east, where the projected return on investment was less than company policy?

A. No, sir.

Q. I wonder then if you would explain your "yes" answer to my earlier question with regard to the meaning of Mr. Shanaman's——

A. Did I concur with his observation?

Q. Observation, yes, sir.

A. On that—the observation was that he was disappointed in the results of the report, and that is what I was concurring with.

Q. Oh, I'm sorry, sir.

Then let me again direct your attention to that portion of the memo in which Mr. Shanaman states that: "The most important part of the investigation is related to the reasons why the investment should be made or not made,

even if the return was expected to be less than company policy."

I infer from Mr. Shanaman's statement that he is saying Dr. LaLande was to recommend whether Pennsalt ought to proceed on a sodium chlorate plant even though the return [fol. 1549g] might be less than your investment policy. Do you infer something different from his statement?

A. It was not my understanding that he was to make an investigation to justify going ahead with the plant, even though the return was less than the required return.

Q. In other words, as you looked at it, the only successful conclusion to Dr. LaLande's study in terms of Pennsalt action would be a decision to proceed with a chlorate plant because it met company investment policy, or a decision not to proceed because it didn't meet company policy, but there was no inbetween area?

A. That is correct.

Q. In our references to your investment policy, shall we assume, or is it correct to assume, that 30 per cent was the target return on investment that you were seeking, or is there a different figure that existed at this time as marking your investment policy?

A. The investment policy guide-post, which deals with the expansion of existing products or the location of a plant, or another plant, for a product which we are already making, called then, and I think now, still calls, for an investment of a minimum of 25 per cent.

Mr. DeLone: Return on investment.

The Witness: Return on investment of 25 per cent, that's [fol. 1549h] the total investment. I don't know whether they have our investment policy on this or not.

* * * * * * *

The Witness: I think this would help clarify a lot of things for you if you just took that.

(The witness handed a document to Mr. Freed.)

Mr. Freed: In order to clarify the record at this point, I would like to have marked as Exhibit 19 the document furnished by Mr. Drake entitled, "Capital Investment Policy, No. 1, Expansion by Construction or Purchase of Fa

cilities". It is a single page, at the bottom of which appears the number "2".

(The document referred to was marked Plaintiff's Drake Exhibit No. 19 for identification.)

* * * * * * *

[fol. 1549i] Q. What was the premise on which the market survey was undertaken? What was the purpose for which this authorization was given to Dr. LaLande?

A. If I recall it, to find out how much sodium chlorate Pennsalt thought it could sell in the southeast.

Q. I would like to direct your attention, sir, to the conclusions stated in Dr. LaLande's report of March 12th, which has previously been marked Exhibit 17, in which on [fol. 1549j] page 5 he states:

"Because the return on the investment on a minimum size sodium chlorate plant (15,000 tons per year) is considerably less than that required by our investment policy for this type of project (30 per cent before taxes), it is first necessary for management to consider an eastern installation of this chemical on the basis of investment return and available capital funds. It might be decided that this case can be considered an exception and that the return is acceptable and that new capital funds can be made available by the company or through outside financing (by borrowing more money or by forming a subsidiary with another company).

"Another approach requiring analysis would be the removal of other projects totalling approximately $5 million from our plant and the substitution of this sodium chlorate project."

In that conclusion Dr. LaLande gave a number of alternative reasons upon which a market survey might be justified. There is no indication that any of the alternatives might involve a return on investment that would meet the investment policy which, he stated there, was 30 per cent before taxes.

I wonder if you can enlighten us in light of these conclusions as to the premise or the basis on which the meeting

in your office on March 27 authorized Dr. LaLande to pro-
[fol. 1549k] ceed with the market survey?

A. He was authorized to proceed with the market survey not on the basis of 15,000 tons of chlorate, nor on the return on investment which he had estimated that we could realize on a 15,000 tons plant, but to make, as we have previously said, once and for all a market, a thorough market survey for Pennsalt for sodium chlorate in the southeast. There was no intention then, never has been any intention, certainly on my part, that we would ever consider going into a sodium chlorate plant project showing a return anywhere near as low as indicated in there.

Q. Was there any intention or consideration given to going into a sodium chlorate plant at a return less than 30 per cent?

A. I think I would best answer that, most accurately answer that by saying that I am certain that if we would consider—there's nothing sacred about 30 per cent—if that is the figure we were using, then if it were 27 per cent you certainly would give it real consideration. but certainly we would not give it consideration anywhere around 15 per cent.

I think it might be well also to say that I wouldn't give any particular significance to the figure of 27. I merely cite that as an example of an order of magnitude.

[fol. 1549l] Mr. DeLone: Do you have that exhibit that Mr. Drake handed you, the Investment Policy? I think it made reference to a different figure.

(Mr. Freed handed the document to Mr. DeLone.)

Mr. Freed: I wish next to show you a document to be marked Plaintiff's Drake Exhibit 21, which is a memorandum from Mr. Land to Mr. Willits, dated March 29, 1957, entitled "Sodium Chlorate Plant in the East".

(The document referred to was marked Plaintiff's Drake Exhibit 21 for identification.)

By Mr. Freed:

Q. In the first sentence of this brief memorandum Mr. Land indicates that his industrial division would be willing to cooperate with Dr. LaLande's study, and in so stating he

makes the remark, "We have many contacts and are, in fact, selling some sodium chlorate now."

Are you aware of the many contacts to which he was referring?

A. No.

Q. Did you realize at this time that the industrial division considered itself to have many contacts in the eastern sodium chlorate market area?

A. No.

Q. On April 4, 1957 Mr. Land wrote a memorandum to Dr. LaLande in which he suggested that since the industrial [fol. 1549m] division could not furnish an experienced man to work with Mr. Sloan for three months on the market development survey, it might be desirable to arrange to contract, to have the market information supplied from outside sources.

I would like the reporter to mark this document as Plaintiff's Drake Exhibit 22.

(The document referred to was marked Plaintiff's Drake Exhibit No. 22 for identification.)

I ask you, Mr. Drake, whether a survey conducted by members of your own organization, your own sales organization, might not have served the dual purpose of assembling the information which you required, and also serving to acquaint the consumer industry with Pennsalt's interest and capability, or at least personalities in this area. If personnel had been available would that advantage of personal contact by Pennsalt to its prospective sodium chlorate customers might not have accrued to the company?

A. I'm sure it would have.

Q. On April 16, 1957 in a memorandum to Dr. LaLande from Fred Shanaman, the document being marked as Plaintiff's Drake Exhibit 23. (Handing document to the witness.)

(The document referred to was marked Plaintiff's Drake Exhibit No. 23 for identification.)

Mr. Shanaman suggested that Brian Shera, S-h-e-r-a, or Harry Fisher might assist in the making of the market survey. Were Messrs. Shera and Fisher, to your knowledge, [1549n] then engaged in rendering technical services

to the chlorine dioxide bleaching units of the pulp and paper industry in the northwest?

A. I'm fairly certain that they were rendering technical service to the pulp and paper industry in the northwest and, undoubtedly, included work on sodium chlorate, whether it specifically included work on chlorine dioxide I don't know.

Q. Was the subsequent decision of your company to retain the services of Arthur D. Little, Inc. a decision which also caused the cancellation of the Shera or Fisher market survey trip to the southeast?

A. I can't recall whether either Shera or Fisher went to the southeast or not. It's possible they did, anyway, but I think the decision to go ahead with Arthur D. Little was simply a matter of availability of manpower in the time allotted to get this study completed; weighing the pros and cons of an outside survey versus an inside survey it was decided to go ahead with Arthur D. Little.

* * * * * * *

[fol. 1549o] Q. Then directing your attention solely to [fol. 1549p] the sale of sodium chlorate to pulp and paper consumers who make use of the Olin or Solvay technical services, would you expect that company attempting to break into that sodium chlorate market would be at a competitive disadvantage if it were competing with—if it did not have the services that Mathieson and Solvay have?

A. All other things being equal, yes.

Q. In your view does the rendering of technical services by Olin give it a significant competitive edge over Pennsalt in the ability of the two organizations to market sodium chlorate in the southeast?

A. Again all other things being equal, I would say yes.

Q. And would the same thing be true to the best of your knowledge of a competitive advantage which Olin will enjoy over Columbia Southern when that Pittsburgh Plate Glass subsidiary begins to market sodium chlorate?

A. This has to be based on my knowledge, or lack thereof of how well Columbia Southern is set up to proceed in the southeast market-wise. But assuming that they are in the same position as we are, I would say that Olin would have an advantage over them.

Q. As far as you know, would there be any difference

in the competitive advantage which Olin enjoys over you and that which it will enjoy over Pittsburgh Plate?

[fol. 1549q] A. Yes, very definitely. I think Pittsburgh Plate have supplied other chemicals down in the southeast, I think this is correct, whereas we haven't to any degree.

Q. Is it your view, Mr. Drake, that there is a distinct competitive advantage in terms of ability to sell sodium chlorate in the south between a company which has previously furnished a substantial amount of chemicals to the pulp and paper industry, and one which is a relative newcomer, such as Pennsalt?

A. Unquestionably.

Q. I direct your attention, sir, to page 46 of the Little Report, paragraph No. 5, entitled, "Value of Full Product Line", which states as follows:

"Our field contacts among pulp mill purchasing agents and operating personnel indicate that a new supplier of sodium chlorate will not gain much by offering a full line of pulp mill and bleaching chemicals. As long as the supplying company has a satisfactory reputation in the pulp industry it makes little difference whether it is able to provide one or more pulping chemicals. One purchasing agent stated that such a product line might actually work to the supplier's disadvantage, since his company does not like to place an excessive dollar volume with any one supplier. The fact that a potential new chlorate supplier was already accounting for a large dollar volume might be justification [fol. 1549r] for its not being given the chlorate business."

A. First I cannot——

Mr. DeLone: Has he asked you a question? He just read the material.

Mr. Freed: I don't believe I asked a question.

By Mr. Freed:

Q. I wonder, sir, if you could reconcile your last answer with the conclusions in the Little Report?

Mr. DeLone: I don't see any inconsistency between them.

The Witness: I can answer it, I think.

By Mr. Freed:

Q. Go ahead, sir.

A. The early part of this paragraph states, if a company has one product does it help them to have more than one product. Now I don't think that has any bearing on the earlier question, that first part of the statement.

Now the second part, the fact that a potential new chlorine supplier was already accounting for a large dollar volume might be justification for its not being given the chlorine business. I can't argue with that. I can conceive that such a situation might exist in an isolated instance. But it is an unquestionable fact that if people know you and have a respect for you, they are going to accept you and your product, old or new, to a greater degree than they are going [fol. 1549s] to accept initially the product of someone whom they don't know.

Q. Is it correct, sir, that the conclusion of the Little organization, as stated on page 47, with respect to Pennsalt's reputation in the industry, coupled with its conclusion on page 46 concerning the ability of a company with a satisfactory reputation to sell sodium chlorate, would, when taken together and accepted as the statements of a reliable organization, give considerable encouragement to the status which Pennsalt enjoyed at the time it received this report?

A. I think I have elaborated a bit on that before with my reference to the middle states, Wisconsin and Minnesota. Now if I was assured that this applied to the whole area, southeast as well as Wisconsin, which I am not, I would have naturally added confidence of Pennsalt's ability, but I don't think this does apply to the southeast.

Q. Was any effort, to your knowledge, made to determine whether these conclusions with respect to Pennsalt's reputation and the value of the full product line were applicable to the southeast?

A. I don't know.

Q. In your understanding wasn't the purpose of the Little Report to survey the market potential in the southeast for selling sodium chlorate?

[fol. 1549t] A. I would assume so.

Q. Then are there some facts which have not yet come out on the record which would lead you to believe that the

conclusions reached by the Little organization on pages 46 and 47 here were not directed to the area in which Pennsalt looked for its principal sodium chlorate market potential?

A. Well, the people in Arthur D. Little are human just like the rest of us, and they can get carried away and give over-emphasis to one element and draw the conclusion that it applies to the whole. I still maintain, because we have not had any problem about the southeast that I know of, of withdrawing chlorine or caustic soda from the market because we never had it down there, so how could we possibly create any antagonism in the southeast.

Now what they're talking about there is no antagonism toward it as a corporation.

. . . . . .

[fol. 1549u] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 392B

WEDNESDAY MORNING SESSION

Whereupon WILLIAM P. DRAKE resumed the stand and, having previously been sworn, was examined further and testified as follows:

FURTHER EXAMINATION ON BEHALF OF THE PLAINTIFF THE UNITED STATES OF AMERICA

By Mr. Freed:

Q. Mr. Drake, we concluded yesterday afternoon with a brief discussion of the Arthur D. Little Report and the analysis of that Report and further work done by the commercial development department of Pennsalt. The files indicate that several meetings were held by Pennsalt personnel in the ensuing months, but the next occasion in which you personally participated in a discussion of the chlorates project in the east appears to be reflected in a memorandum dated December 5, 1957 from W. Cooper Willits to the file, titled, "Chlorates—East."

I would like the reporter to mark this Plaintiff's Drake Exhibit 26.

(The document referred to was marked Plaintiff's Drake Exhibit No. 26 for identification.)

I ask you, sir, does Mr. Willits' memorandum refresh your recollection of the conference which took place in your office on December 5, 1957?

A. Yes, sir.

. . . . . .

[fol. 1549v] Q. Mr. Willits' memorandum refers to a question by you as to whether Pennsalt agrees that it is unlikely, in view of the capital requirements and relatively low return on investment, that Pennsalt would alone approve construction of an eastern plant, and this memo further reflects that the answer was "yes".

Can you recall—strike that.

Was this decision or this answer in December of 1957 a final answer as far as Pennsalt was concerned, as far as its ability to go alone, or was this simply an indication of probability with respect to Pennsalt's future plans regarding a lone venture in the eastern part of the United States?

A. I think you can consider this—

Mr. DeLone: A lone venture, l-o-n-e, I take it?

Mr. Freed: Yes, sir.

Mr. DeLone: All right.

The Witness: I think you can take this as the final decision that on the manufacture and sale of sodium chlorate alone we had decided not to go futher with it.

By Mr. Freed:

Q. Then from this date on, would it be correct to assume [fol. 1549w] that the Pennsalt only viewed the sodium chlorate in the east project as a joint venture or no venture at all?

A. I would have to modify my answer on that to this degree, that later on we did reconsider going it alone with a perchlorate in the picture, but it was only when the perchlorate came into the picture that we took another look at the "alones". Otherwise my answer would be yes, that

we decided that if we went ahead at all it would have to be with a partner on sodium chlorate.

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[fol. 1549x] Mr. Freed: I would like the reporter to mark as Plaintiff's Drake Exhibit 27 a memorandum to the file [fol. 1549y] from J. L. Logan dated February 4, 1958, entitled, "Sodium Chlorate".

(The document referred to was marked Plaintiff's Drake Exhibit No. 27 for identification.)

By Mr. Freed:

Q. Mr. Drake, does the first paragraph of Exhibit 27 refresh your recollection as to the outline which, according to this memorandum, you gave concerning Pennsalt's long-range interest in chlorate in the south, and your suggestion that there was sufficient, that both Pennsalt and Olin had to contribute to seriously consider joint activity?

A. I would think that I expressed in broad terms the interest that we had had, the interest that we continued to have except that we couldn't make a go of it financially because of the low rate of return, and I undoubtedly indicated that the idea of Pennsalt with its technology and Olin Mathieson with its position distribution-wise aided to a degree, at least, by their chlorine dioxide process, assuming that Olin Mathieson were interested in exploring the idea of a production facility in the southeast to supply that growing market: wouldn't it be a good idea to really explore this together and see if there was anything in it for the two companies.

Q. Can you recall Mr. Logan's reaction?

A. I think Mr. Logan's reaction was, this looks interest-[fol. 1549z] ing to me. I want to talk to some of my people about it.

Q. Did Mr. Logan at that time tell you anything about efforts which Olin had been making in the sodium chlorate production or in the sodium chlorate business?

A. I don't recall actually that he did or didn't.

Q. You have no recollection on that point?

A. No.

Q. Can you recall whether it was you who stated, as

indicated in the second paragraph of exhibit 27, that Pennsalt was shortly to announce embarking on the perchlorate business in Portland?

A. The chances are that I did. I don't remember specifically that I did but it would be a likely thing for me to do.

Q. Can you recall any discussion at this time of tying in the announcement of the perchlorate plant with an announcement of your plans or interest in an eastern sodium chlorate facility?

A. There again I don't recall specifically mentioning that at that meeting. I know we did make the announcement later that when we announced the perchlorate plant in the northwest that we were considering a plant at a place unknown, not designated, another plant, but whether I specifically mentioned that at the meeting, I really don't recall at this [fol. 1549aa] particular meeting.

Q. Can you recall the circumstances which led Pennsalt to make the announcement about another sodium chlorate plant at an undesignated location?

Mr. DeLone: I didn't understand the witness to say sodium chlorate plant. He was talking about perchlorate plants.

By Mr. Freed:

Q. Could you enlighten us about the announcement of another plant to which you have just alluded?

A. Yes, I think so. This was one of the times when the flurry of great interest in perchlorates developed. Projections were being made by several government agencies as to the demands. We had been urged by at least one government agency to build a perchlorate plant because there was then— I think I'm correct on this—there was only the one producer that I can recall, and that was a Navy plant, that American Potash was operating at Henderson, Nevada, and they would like to have another supplier. The projections of perchlorate consumption were rather fantastic at the time.

When we announced the building of a plant at Portland for perchlorate we felt it tactically desirable to also indicate an interest in at least a perchlorate plant at some location

other than on the west coast, and that is what we did in this [fol. 1549bb] announcement.

Q. Do you recall whether the announcement referred to any product other than perchlorate at the second location?

A. I don't think it did. I'm not positive of that; I'd have to look at the announcement again.

* * * * * * *

[fol. 1549cc] Mr. Freed: Or you found in your files copies of Pennsalt's press release?

Mr. Subak: The only thing we found in our file was a copy of Pennsalt's press release.

Mr. Freed: The response which Pennsalt has given to date to Item 44 of Interrogatory Set 3 indicates, as with respect to any documents, the following sentence: "The publicity releases issued at the time of the announcement of the new Portland plant reflected this thinking." To the extent that that is a designation and a description with particularity of documents which relate to the announcement of the underlying facts, I would like to request at this time a copy of the announcement if counsel for Pennsalt has it in order that we might pursue this subject with Mr. Drake.

Mr. DeLone: We do not have the press release referred [fol. 1549dd] to with us. Mr. Subak has already stated that he understands the press release, his recollection is the press release is substantially the same as what you already have, which is what appeared in "Chemical Week." We certainly have no objection to proceeding on that premise and will be glad to supply you with the prese release. We did not understand that that had been requested of us up until this time, but we have no objection to giving it to you when we can get it. It's in Philadelphia.

Mr. Freed: Do you have the date on which the press release was issued?

Mr. Subak: It was dated a day or two before the earlier date mentioned in the government interrogatory.

Mr. Freed: That would be then about February 11, 1958?

Mr. Subak: That's approximately correct.

By Mr. Freed:

Q. Mr. Drake, do you know the background of the press release to which counsel for the government and for Pennsalt has just been referring with respect to the place at which it was issued, first of all?

A. I think probably it was issued from Philadelphia.

Q. Do you recall whether the press release made any mention of anything other than perchlorate when it referred to a plant at an unannounced location in the south?

[fol. 1550] A. I doubt very much that it did. I think I can give you a little more background that may give you some help here. This was at a time when there was keen interest on the part of the general public on this still fascinating field of high energy. Now Pennsalt, for some, has been interested in the high energy field through elemental fluorine, perchlorofluoride, chlorine trifluoride and similar products. As you may know elemental fluorine has the highest energy potential of any known element.

As a part of our image, if you will, we were trying to create Pennsalt in the eyes of the public and for a good reason, as a factor, and a growing factor, in the high energy field. I think if you will look at this announcement in that light you get a little better perspective of what was behind, not only the announcement of the perchlorate plant at Portland, but also the idea that we might build another plant elsewhere in the country.

Q. At the time the release was issued, did you have a particular location for that plant in mind?

A. I'm sure that we were leaning toward Calvert City for a number of obvious reasons. We already had a plant there, we had lower power costs there. We were giving some thought to, as I expressed earlier, the utilization of the perchlorate to sweeten up the chlorate venture, and it would do that. So that I think, going it alone, particularly [fol. 1551] we would probably have put it at Calvert City.

Q. At the time the release was issued was it contemplated that Pennsalt would go it alone at the location with a perchlorate plant?

A. I think very serious thought was being given it at that time.

Q. And in the serious thinking which was given, was

the production of sodium chlorate for use in the ammonium perchlorate contemplated at the Calvert City location?

A. I'm sure that if we had put the perchlorate plant at Calvert we would undoubtedly have put the chlorate plant there.

Q. At the time the announcement was issued was there any anticipated size, at least in terms of the Pennsalt thinking, behind the release of the sodium chlorate production facilities?

A. I'm a little hazy on these figures, but as I recall it we were then thinking, either then or I know at some point we were thinking, of a 30,000 ton sodium chlorate plant, 10,000 of which would be utilized in the manufacture of perchlorate.

Q. At the time the release was issued what was the thinking within the company with respect to the other 20,000 tons of sodium chlorate?

Mr. DeLone: Now the witness just said he wasn't sure of [fol. 1552] the timing so far as these figures are concerned. You have asked him whether it was at the same time as the release and he said he wasn't sure whether it was before or after. He knows there was such thinking, so that you may be clear on that.

Mr. Freed: Would the reporter read back the last question?

(The reporter read the question.)

Mr. DeLone: I think you had better add to my comments and I therefore object to the form of that question because it assumes as a fact that the thinking was simultaneous with the release when the witness has said he wasn't sure about the timing of the contemplated 30,000 ton plant in relation to the time of the release.

By Mr. Freed:

Q. Mr. Drake, was any consideration given at the time of the release to the allocation or disposition of the remaining portion of the production of the plant which would produce sodium chlorate to make ammonium perchlorate?

A. I think I would have to refer you back to the comment I made earlier as to the purpose of the release in regard

to a second possible perchlorate plant. Our thinking had not crystallized on even whether we would put the plant in, let alone where we would put it or how big it would be, or how we would dispose of even the perchlorate. It was, if [fol. 1553] you can boil it down, I think you must consider it a tactical statement.

Q. And what was the tactical objective sought by the issuance of this statement under the circumstances just outlined?

A. To further establish Pennsalt as a factor in the high energy chemicals field.

Q. At the time the release was issued did you, within the company, gauge the likely effect on competitors of Pennsalt in the perchlorate field?

A. I don't think that was of too great a consideration to us.

Q. Who constituted the audience to which your announcement was directed?

A. Well, I think, as I indicated before, the general public.

Q. But is it your testimony that there were no consumers or competitors in the perchlorate field whom you had in mind at the time the release was issued?

A. I'm almost certain that we were not thinking about competitors. I'm equally certain that we hoped that the consumers, or the consumer, namely the United States Government, would take note that Pennsalt was ready to become a factor, a substantial factor, in the ammonium perchlorate field if and when the demand for perchlorate de- [fol. 1554] veloped, there then being an indication such a demand might develop.

Q. Was Pennsalt prepared to proceed to construct a perchlorate plant in the south if, in response to its announcement, a demand appeared?

A. The preliminary figures that we had on a perchlorate plant I recollect were sufficiently good. To answer your question, I think with very little doubt, in the affirmative.

Q. When had the suggestion of an eastern perchlorate facility first been made within the Pennsalt organization?

A. I don't recall.

Q. Can you recall whose suggestion it was?

A. Not specifically. We have had a number of people circulating among the government agencies and had had,

for some time, developing projections and the like of what the demands might be for various types of high energy chemicals, but I don't recall specifically who the individual was that first made the suggestion.

Q. Can you recall when the decision was made to—strike that question.

Can you recall when the question of issuing a press release with regard to a southern perchlorate plant was first raised?

A. No, I can't.

[fol. 1555] Q. Had Pennsalt, prior to the time of the release, made an economic evaluation of the prospects of a perchlorate plant in the south?

A. I think I'll have to ask you what you mean by "economic evaluation".

Q. Perhaps——

A. I'm not trying to be difficult. I'd just like to understand you.

Q. Perhaps I had better withdraw my question and ask you, sir, what preparatory work Pennsalt had done prior to making an announcement with respect to its perchlorate intentions in the south?

A. I think we have made some estimates on it and I don't recall again whether it was the specific date on a perchlorate plant along with chlorate, because you have to make chlorate to make perchlorate. I am sure it was at that stage a very unrefined estimate, when I say that, probably as I referred yesterday, to a plus or minus 25 per cent accuracy, if that. We had a much more detailed estimate of the economics of the perchlorate plant for the northwest when we actually put the northwest plant in.

. . . . . .

[fol. 1556] By Mr. Freed:

Q. To return to the document designated Exhibit No. 27, I would like to ask you, Mr. Drake, whether the discussion of perchlorate referred to in paragraph 2 in any way included a discussion of the release which, as Mr. Subak has indicated, was issued eight days after the meeting.

[fol. 1557] A. It's possible but I don't recall it.

Q. Do I correctly understand you, sir, that you have no

recollection of communicating to Mr. Logan or that anyone from Pennsalt at this meeting communicated to Mr. Logan the fact that Pennsalt was then contemplating a plant and an announcement of a plant to be located in the south to produce perchlorates?

A. I really don't recall it.

Q. In the first sentence of the third paragraph in Exhibit 27, Mr. Logan states: "It is felt that neither Olin nor Pennsalt should move in the chlorate or perchlorate field without keeping the other party informed, and I agree to do so."

I wonder, sir, if you could recall for us the conversation which led Mr. Logan to record this statement?

A. As I said earlier, I don't recall any discussion of the perchlorate, although, as he has indicated here, it may be just my poor memory. I am sure in regard to the chlorate that having explored this and without making any commitments I am positive that we each made this clear to one another, that we would or would not have a joint venture or that we would or would not do something alone. We merely indicated that because of the possibility of an interest in a joint venture that we would exercise the courtesy to one [fol. 1558] another of advising one or the other of our respective further interests in chlorate before we would take any definite action.

Q. In light of your statement, sir, that no decision had been reached, at least by Pennsalt, with respect to a single or a joint venture, would it be correct to say that at this time both Olin and Pennsalt were potentially either partners or competitors in the sodium chlorate field and the perchlorate field.

A. I certainly would say that it was evident at this point that we were potentially partners. I'm not in a position to say whether Olin would be, if they went it alone and was ready to go alone and, therefore, would become a competitor.

Q. Then just dealing with what you know of the Pennsalt organization at this time, is it true that Pennsalt had made no decision as to whether it would become a partner of Olin's or a competitor in its own right in the sodium chlorate and perchlorate business of the south?

A. First I would say that we had already made the decision that we would not put in a chlorate plant on our own

in the southeast. We had not come to any conclusion as to whether we would put in a combined chlorate-perchlorate plant, although we were then in the process of exploring it. And we were also exploring the possibility of a joint ven-
[fol. 1559] ture, in its preliminary stages we were exploring it with O.M.

Q. Did the press release which was subsequently issued to your recollection give any intimation of a joint venture in perchlorate or chlorate?

A. No, no.

Q. Then would it be correct to say that at the time the realease was issued Pennsalt manifested to the general public, at least, its interest in becoming a competitor in the chlorate-perchlorate field in the south?

A. In the perchlorate field.

Q. To your recollection there wasn't any mention made?

A. I don't think there was any mention made in the release of chlorate.

Q. The last sentence of Mr. Logan's file memorandum, Exhibit 27, states that either party is to bring to the attention of the other any unusual aspects of this business which might make it desirable to proceed further with the production plans.

Can you tell us what these aspects might have been, as you recall the discussion in Philadelphia?

A. I think at this time, as you know, we had begun to supply some limited quantities of chlorate to Olin Mathieson
[fol. 1560] for exploratory purposes in the southeast. I am sure that that would be one of the things that would periodically be reviewed to see what progress they were making in this exploratory activity. What the word "unusual" means I don't really know.

Q. Can you recall mention of any circumstances, unanticipated circumstances, which someone present said might make it desirable to proceed further with production plans, apart from the sales arrangement that is referred to in the previous sentence?

A. No, I don't.

Q. Can you recall any discussion at this meeting of the interest of other competitors or other potential competitors——

A. No.

Q. —in the sodium chlorate business?

A. No, I don't.

Q. Were you aware, Mr. Drake, at the time of this meeting of the interest of Columbia Southern and some of the other chemical companies mentioned as potential competitors in the market surveys that had been made by and for your company?

A. Gee, I don't know, I don't recall that I was.

Q. Mr. Drake, what was the response to the press release which the Pennsalt put out respecting ammonium perchlor-
[fol. 1561] ate plant in the south?

A. Darn little, if any.

Q. Can you recall any communications to you, or known to you, by either potential customers or competitors of Pennsalt in chlorate or perchlorate?

A. No.

Q. Can you describe for us the evolution of the plans stated in the press release with respect to this perchlorate plant in the south?

A. I thought I tried to do that to give you the background as to what we were endeavoring to do, why we made the release. Would that suffice for your answer?

Mr. DeLone: I think perhaps you ought to repeat the question. I'm not sure he heard the question accurately.

(The reporter read the question.)

Mr. DeLone: You want to know what happened after the press release, don't you?

Mr. Freed: That states it much better, sir.

The Witness: In regard to that release?

By Mr. Freed:

Q. In regard to the release and the plans which were mentioned in the release.

A. As far as the release was concerned I don't recall anything that happened. As far as the plans were concerned, as I mentioned earlier, we were then in the process of evaluating, in a preliminary way at least, the economies
[fol. 1562] of a plant which would include perchlorate, and obviously would include chlorate because you have to make

the chlorate for the perchlorate. Other than that I'm afraid I can't add much to it.

Q. But was there a specific point at which the plans mentioned in the press release were scuttled, dropped?

A. I don't think there was, that you could put your finger on. I think, unfortunately, like many things it gradually died a natural death. I'm sure not without some careful appraisal. But I would think sometime in '59 probably we had learned enough, both from the acceptance of our product up in the northwest, that is perchlorate, and the revised projections of the governmental agencies that might buy this material to conclude that perchlorate wasn't in the picture, and I don't think you can probably put your finger on any specific meeting or date when it was, as you say scuttled.

Q. But to your recollection that was probably sometime in 1959?

A. I would think that would be about right.

Q. Since the time of that decision has anything occurred in the perchlorate field to alter your thinking about the potential for a perchlorate plant in the east?

A. I guess we're getting a little more sophisticated to the enthusiasm expressed by some segments of the missile in- [fol. 1563] dustry so that although there have been revivals of enthusiasm in the projection of the demand for ammonium perchlorate, and obviously we reacted somewhat to each of those revivals, there is nothing today even that would indicate that in the foreseeable future there will be the demands for perchlorate that we had hoped for back at the time we were discussing this.

Just as an aside, and I'm not sure this should go in the record——

Mr. DeLone: I don't know what you are going to say but if it is something that should not be on the record I have no objection to your stating it to Mr. Freed off the record, if he has no objection.

The Witness: I was merely going to indicate a matter of interest. He can decide whether he wants to put it in the record.

Mr. Freed: Why don't we leave it on the record. If it

turns out to be inappropriate, by mutual consent we can strike it.

The Witness: Well, the appropriateness of it has nothing to do with this. I'm just wondering—I guess this is all right—I was thinking of it from a security angle, that's all.

There is a study being undergone now, or is contemplated, to try to decide once and for all whether this area of energy [fol. 1564] is going to go solid propellent-wise or liquid propellent-wise, and I think pending the outcome of that it's going to be very difficult for anyone to know what the picture is going to be on a thing like perchlorate, which is one of the oxidizers used in solid propellents.

By Mr. Freed:

Q. In other words at the present time the future of perchlorates are in doubt, they're in a state of study and a state of flux and you cannot base any action today on—

A. No, no. There are a few of the missiles which will—are operational or will soon be operational that will probably use perchlorate. How extensively the missiles will be used themselves or how many will be built, I can't answer, I don't know who can. But it's in enough of a state of flux so that your statement is correct. It would be difficult to—for anyone, I think, to say what the demand for perchlorate will be in the foreseeable future.

Q. Mr. Drake, if the present state of flux in the perchlorate field should, within the near future, gel into a perceptibly increased demand for ammonium perchlorate, what would Pennsalt do with respect to the possible production of ammonium perchlorate in the east?

A. We'd certainly take a good look at it.

Q. And at the present time is this a project which you would consider at Calvert City?

[fol. 1565] A. Possibly.

Q. Has there been any discussion to your knowledge with Olin respecting the future application of sodium chlorate from your Penn Olin facility to the production of ammonium perchlorate?

A. Well, there has been discussion of it. I think the matter of perchlorate has been eliminated from the contemplated Penn Olin venture, from what I understand.

Q. It is certainly the understanding of counsel for the

government that sodium chlorate is the only product that Penn Olin contemplates manufacturing.

My question, however, is whether Olin and Pennsalt have discussed the possibility of applying the production of sodium chlorate at Calvert City to the production of ammonium perchlorate if the demand occurs in the future?

A. To my knowledge since the Penn Olin venture was confined to chlorate alone, there have been no discussions with Olin Mathieson about perchlorate.

Q. If the demand for ammonium perchlorate should rise substantially hereafter, would Pennsalt be able to construct its own ammonium perchlorate facility at Calvert City, using the output of Penn Olin?

A. Physically we could. Whether we could use the output of Penn Olin would depend upon the time and the availability of the chlorate. In other words, would there be an [fol. 1566] excess chlorate at Penn Olin which Penn Olin would be willing to sell to Pennsalt for the manufacture of perchlorate?

Q. Has Pennsalt reserved, by agreement with Olin, land at Calvert City for expansion of the Penn Olin facilities?

A. I think there is about 12 or 14 acres there, as I recall it.

Q. And do you have any plans or contemplation at the moment as to the manner in which that land might be used in the future?

A. The only thought that I know that has been given to any further use of that land would be in the event that the demand for chlorate is such that it increased to a point where an expansion of the chlorate plant was indicated.

Q. Is the amount of land which has been set aside on option to Penn Olin—does it bear a reasonable relation to the amount of land required to expand a sodium chlorate facility alone?

A. The technical fellows can answer that better than I can. I would think that it permits an expansion. How much of an expansion I don't know.

Q. Following your meeting in Philadelphia on February 3, 1958, when did you again——

A. Excuse me, you mean February 4th, I beg your pardon, yes, sorry.

Q. When did you next meet with representatives of Olin [fol. 1567]. with respect to the possible joint venture?

A. I don't recall any meeting with Olin until that one early in January of '60. I may have had meetings with them but I don't recall.

Q. There is a reference in the minutes of Olin's division management meetings in June and July 1958 that Mr. Logan conducted further discussions with Pennsalt with regard to the joint venture.

Do you have any recollection in the month of June or early July 1958——

A. No.

Q. —of discussing the matter with him?

A. No, I don't. I don't for a minute say there weren't discussions but I don't recall them and I don't think that they were with me.

. . . . . .

[fol. 1568] Q. On August 1, 1958 in a brief memorandum to Mr. Lawson from Mr. Land, the statement is made, "Mr. Drake has asked us to advise him if the figures shown in your letter to me dated May 28 are still valid, now that Hooker has announced its planned expansion."

I would ask the reporter to mark this as Plaintiff's Drake Exhibit 28.

(The document referred to was marked Plaintiff's Drake Exhibit No. 28 for identification.)

My question, sir, is whether you can recall the occasion for your renewed interest at that time in the sales estimates which Mr. Land refers?

I might ask the reporter to mark as Exhibit 29 a reply memorandum to you from Mr. Land dated September 8, 1958.

(The document referred to was marked Plaintiff's Drake Exhibit No. 29 for identification.)

This states that: "Mr. Lawson tells me that the figures given in his letter of May 28, 1958, concerning projected sodium chlorate sales in the east, are still valid."

[fol. 1569] I ask whether those two documents together perhaps refresh your recollection on what prompted this

renewal of interest in the summer of 1958 in Pennsalt's ability to sell sodium chlorate in the east.

A. I can't think of anything except as was the fact when Oldbury announced their expansion; Potash announced their plant and the same thought process went on in my mind, well, if they can do this why can't we? I suppose it was a needle in a sense. I can't think of any other particular reason why.

. . . . . .

[fol. 1570] Q. Yes, sir. In order to aid your recollection in this regard I would like the reporter to mark as Plaintiff's Drake Exhibit 31 a memorandum of October 29, 1958 [fol. 1571] from Mr. Eastman to Mr. R. W. Sloan entitled, "Chlorates Opportunities East of the Rocky Mountains".

(The document referred to was marked Plaintiff's Drake Exhibit No. 31 for identification.)

Does this three page summary of the meeting held on Monday, October 27, 1958 refresh your recollection with respect to a meeting that was attended by you?

A. Again I don't remember the specific meeting but it is obvious that there was one.

Q. Is it apparent from the face of the memorandum that you were present at that meeting?

A. At the meeting in October I was not present, but at the October 29th meeting—now wait a minute, I must have been present.

Mr. DeLone: Mr. Drake, for obvious reasons, hasn't had time before this examination to review, read all of these memorandums. Maybe you can give him a minute to look through this one; it would help.

Mr. Freed: I would be delighted to do so. All right, I appreciate your taking the time now.

(Pause for examination of documents by the witness.)

The Witness: All right, now what?

By Mr. Freed:

Q. On the first page of this three page exhibit, there is a paragraph near the bottom numbered 3, which states: [fol. 1572] "Industrial division will be responsible for the sale of sodium chlorate from the new plant."

Can you recall for us the discussion which underlay this one sentence summary?

A. I don't recall the discussion. I can assume that it stemmed from the sales forecast that Lawson had made on sodium chlorate.

This memorandum actually deals with two subjects, possibly three: The combination chlorate—perchlorate plant at Calvert, the expansion of the perchlorate plant at Portland, and another item on which I can elaborate a little here.

There is some reference here to the manufacture of a slurry. That was in connection with the possibility of making a slurry up at Portland and shipping it down the coast to one of the potential producers of rockets, where it would be converted to perchlorate at the plant site.

Q. Can you recall, sir, the discussion with underlay the sentence which begins at the bottom of page 1: "If the project is accepted Olin Mathieson may be used as a sales agent covering the pulp and paper industry, particularly in the early years"?

A. I think that is considered as an alternative, was considered as an alternative to the previous item 3 which says [fol. 1573] that industrial division will be responsible for the sale of sodium chlorate.

Q. Would the latter statement be an alternative or would it be a way in which to supplement the efforts of the industrial division?

A. It could be, it could be the latter.

Q. The statement is made in the third line, fourth line on page 2 that: "The long term price trend in sodium chlorate is probably up."

Can you tell us the basis on which that optimistic judgment was discussed?

A. I think that was exactly just what you said, optimism.

Q. But do you recall who made this forecast?

A. I don't recall that.

Q. In item No. F on page 2 is the statement that: "Am-Pot may shift away from its Solvay sales agent arrangement."

A. I don't know what the background of that one is.

Q. Turning then, sir, to the meeting referred to in item 1 of Exhibit 31, namely the next meeting will be held in the board room, I call your attention to a memorandum, again from R. J. Eastman to R. W. Sloan, dated November 11, 1958 entitled, "Chlorates Opportunities East of the Rocky Mountains."

[fol. 1574] I would like the reporter to make this as Plaintiff's Drake Exhibit 32.

(The document referred to was marked Plaintiff's Drake Exhibit No. 32 for identification.)

I would be happy to suspend for a moment so you could refresh your recollection about that meeting.

A. All right.

(Pause.)

A. Very good.

Q. On the basis of your reading of Exhibit 32, sir, can you recall attending this meeting which was held on Monday November 3, 1958?

A. Actually, I don't. Obviously I was there but I don't recall it.

Q. Would you identify for us the persons attending the meeting as indicated by the beginning of the memorandum and indicate in each case what the position in Pennsalt's organization was that each occupied at the time?

A. Certainly. D-11, of course is myself. K-5 is Karr, L-9 is LaLande, L-14 is Land, L-45 is Lawson, S-12 is Fred Shanaman, and W-17 is Al Woodard.

Q. And what were the positions in Pennsalt of each of these people?

A. Oh, I'm sorry. Karr, as I mentioned yesterday, was in effect a technical adviser to Shanaman on the west coast. LaLande was Vice President and technical director of the [fol. 1575] company. Hugh Land was at that time General Manager of the industrial division east. Lawson was the general sales manager of the industrial division east.

Shanaman was head of the western operation and Woodard was the chief engineer.

Q. Was this meeting a management council meeting?

A. No.

Q. How can you describe the kind of meeting it was in light of the people who attended and the purpose. Was it simply an ad hoc committee for the consideration of a single project or was it a more regular group?

A. No, this was an ad hoc group with the exception of More. You recall a meeting that we referred to yesterday where Fred Shanaman had suggested that we have a group to study chlorates and included Karr and More? Well, this is an expansion, really, of that I would say. These are merely the people that had a specific responsibility in it.

Q. When you say "in it" do you mean in the——

A. In a certain phase of the——

Q. —in the chlorates opportunities east of the Rockies?

A. In the review of it, of the chlorates opportunities. Sloan obviously was the head of commercial development at the time.

Q. Directing your attention to page 2 of Exhibit 32, [fol. 1576] paragraph No. 2 he states: "The future market outlook is good, historically the U.S. producers have made little effort to expanding existing uses or to develop new uses. Experienced personnel believe that such efforts should be very rewarding."

Can you recall whether any examples were given of the potential future market for sodium chlorate that were discussed at this meeting?

A. No, I can't.

Q. Do you know, whether as a result of this meeting, Pennsalt undertook to develop or expand existing uses or develop new ones?

A. I don't think any unusual effort was made. I'm sure a continuing effort was being made in the northwest, particularly where the knowledge was to find additional uses for chlorate. Other than that I don't know of any.

Q. In paragraph 4 the statement is made that "As the newest producer, Pennsalt, should and could take leadership in promoting sales aggressively, extending existing uses, developing new uses, improving use technology" and in the last sentence of paragraph 4 it states that assembly

of these assets should start immediately by the industrial division.

Do you recall the discussion with reference to the statement that Pennsalt should and could take leadership in [fol. 1577] promoting sales aggressively?

A. No, I not only can't recall it, I don't even know what it means.

Q. In paragraph 5 reference is made again to prices and this time the prediction is made: "Sodium chlorate bulk prices should remain firm through the near future and then increase."

Can you recall any specific discussion that led to that more subdued appraisal of what would happen to prices?

(Laughter.)

A. Very well put. I think you are witnessing here a combination of the enthusiasm of some people who would have no responsibility for producing—when I say "producing", I am talking about particularly producing the sales—and the somewhat more leveling effect of those who knew more of the facts of life in regard to sales of chlorate.

Q. In paragraph numbered 7 Mr. Eastman's summary states:

> "A second followup announcement on this proposed Calvert City plant should be issued promptly to preempt the market from other interested companies, Solvay, Columbia Southern, Olin Mathieson, et cetera".

Can you recall any of the discussion at the meeting [fol. 1578] which led to this summary statement?

A. No. No, I do not. It was never done, incidentally.

Q. The next sentence states:

> "Wording of the publicity should be carefully chosen to avoid upsetting current pricing, particularly in perchlorates".

Could you explain to us how the wording of an announcement could avoid upsetting pricing, or can you recall any discussions at the meeting about this particular point?

A. That's a good question, but I can't answer it.

Q. At the bottom of page 2, paragraph 9, the statement

is made about 10 per cent of PCC's current sales are in pulp and paper and with the proposed expansion of chlorates this would be about 15 percent in 1963.

Can you recall where these 10 percent sales and projected 15 per cent sales—well, let me divide the question.

Where were these current sales which represented 10 percent of Pennsalt's current sales being geographically made?

A. This is largely in the northwest and included, I am sure, all Pennsalt products, not just chlorates. I think the reason it came up at this time is that I prefer, if possible, to not have any one industry represent more than, oh, 15 per cent of our total sales. I don't like to be too dependent [fol. 1579] upon any one industry. It gives your earning power more stability; you don't have the wide fluctuations.

Now, that's only a yardstick. I'm sure that if we had a good project that took it up to 17 per cent or something like that we wouldn't turn it down just for that reason, but we would take a look at it from that angle.

Q. Can you tell us today the approximate percentage of Pennsalt's total sales which go into the pulp and paper industry?

A. I'd give you an awful wild guess if I did and I think it might be misleading.

Q. Could you give us your best estimate, now, subject to—I believe we have already asked for——

A. I don't think it's fluctuated probably much from this 10 per cent.

Q. On page 3 of this exhibit, down here at the bottom of the page under item 2 it states:

> "In summary the following action and timing were agreed upon:
>
> "Mr. Drake will apprise the board of the proposed plans for production and marketing of sodium chlorate and ammonium perchlorate in the east. Specifically, the proposed plant at Calvert City is to have a capacity of 30,000 tons per year sodium chlorate and 10,000 tons [fol. 1580] per year ammonium perchlorate. Industrial Division will market 20,000 tons per year sodium chlorate and the balance of 10,000 tons per year will be used captively for perchlorate production".

Can you recall apprising the board of the subjects enumerated in this memorandum?

A. I'm not sure I did it at that time. I don't—I think possibly as I neared the board meeting I felt it might be a little premature. I don't recall mentioning it to the board.

Q. And a copy of this document——

A. If I did, it was very—a very incidental matter.

Q. In the copy of the document which we have there is a marginal note next to item 2——

A. Oh, yes, well that ties in with my last statement, then.

Q. There is the date 11/3/58 but what is the word above it?

A. Done. I hadn't noticed that, but obviously I did tell the board something about it; and I don't think that I placed great emphasis on it at the time for the reason I earlier expressed, that I had some feeling that it might be a little premature.

Q. In light of the gathering of experts from within the [fol. 1581] Pennsalt organization at the meeting which is the subject of Exhibit 32, can you tell us what factors, apart from those which came out at the meeting, led you to not follow up what the summary indicates was agreed upon—or, not followup—more than touching on it as you describe?

A. Yes, I think that's easy. I think undoubtedly the same reaction came to me then after reading this summary as it did today when I read it for, I guess, the second time.

It sounds almost too good.

Q. Can you recall specifically any of the discussion at the board meeting when you transmitted the substance of this recommendation to the board?

A. No. I think it was a matter of reporting. I usually do that in a situation like this where I merely say I would just like you to know that we're reviewing this possibility and if it gels, why, at some later date we'll come back to you with an appropriation request, or I may want to discuss it with you even before an appropriation request.

. . . . . .

[fol. 1582] Q. In item 3 on page 3 of Exhibit 32 the statement is made that following (2), which refers to the paragraph about Mr. Drake apprising the board;

> "Mr. Drake will make final decision to authorize action and expenditures for"

then it proceeds to list a number of areas in which you were to authorize action.

With respect to the first of these which was: authorize the Central Engineering Department to design and [fol. 1583] engineer for an appropriation request a 30,000 ton sodium chlorate plant and subsequently a 10,000 ton perchlorate plant, did you authorize that action?

A. I don't recall that I did. I think we had plus or minus 25 per cent. Now I'm trying to recall this from memory, obviously, but I would refer you here to the—I think there is some reference here to the growing demand for perchlorate. There was considerable enthusiasm expressed here, as I recall it. Oh, there it is, item 3 on page 3, "Demand for perchlorate appeared upon review to be more than adequate." This is the leveling statement here. It was the previous memorandum that had it, the perchlorate demand soaring. This states: "Military demands for ammonium perchlorate appeared, upon review, to be more than adequate to absorb all projected production during the next five years."

This is a little odd way to express it but I guess it means, our projected increase could be absorbed by the demands of the military, which was later found to be incorrect. How soon we found it to be incorrect I don't know, but I would guess that this, being one of the significant or the most significant factors in this project, that before authorizing the refinement of the engineering design, we checked further on this demand for perchlorate and I doubt, there- [fol. 1584] fore, that the actual further refinement was authorized.

Q. With respect to item B on page 4 of the program for final decision and authorized action, the statement is made:

"Industrial division immediately to plan, organize, and undertake entry in the southern and other eastern pulp

and paper markets. The objective will be the commercial sale of the product beginning in January 1960."

Can you recall taking any action with respect to that conclusion or recommendation?

A. No, and I think again that ties in with the hesitancy I had in going ahead with the further refinement and the cost connected thereto. There must have been in here at some point an indication that we couldn't dispose of the perchlorate, and that again being the key factor, there was no point in going ahead with this chlorate study or organization of planning, et cetera.

Q. Can you recall giving any instructions to Mr. Land, or whoever the appropriate official would have been, under Item B on page 4, with respect to proceeding or not proceeding to plan, organize and undertake entry in the southern and eastern pulp and paper markets?

A. No, I don't.

Q. Do you recall after the board meeting of November 3, which followed upon the meeting with these management [fol. 1585] people, as reported on Exhibit 32, that you thereafter had a conversation with Mr. Logan with regard to the location of a possible sodium chlorate plant? Can you recall any meetings with Mr. Logan at the end of '58 or beginning in '59?

A. No, as I mentioned earlier, the next meeting that I recall with any of the Mathieson group were those in January of 1960.

Mr. Freed: I would like the reporter to mark as Plaintiff's Drake Exhibit 33 a letter dated February 27, 1959 to Mr. Drake from Mr. Logan.

(The document referred to was marked Plaintiff's Drake Exhibit No. 33 for identification.)

By Mr. Freed:

Q. I would ask, sir, after you have had an opportunity to study that letter if you can recall the circumstances under which you and Mr. Logan had the meeting he referred to, if such a meeting did take place?

A. Well, first I don't recall the meeting, if a meeting took place. This well could have been simply a phone conversa-

tion or it may have come from the result of a discussion he might have had with either Shanaman or Land to determine whether Brunswick, Georgia—I think there was some reference somewhere in the files to also reviewing the possibility of a McIntosh location; I think he checked the [fol. 1586] power on that location as well.

Q. I believe your recollection in that respect is correct and is reflected by subsequent correspondence. You have no recollection of the circumstances that brought you together on this discussion of location of a chlorate plant in the early part of 1959?

A. You and I discussed in New York—that would have been January of 1959.

Q. In order to, I hope, aid your recollection, sir, I would like to show you a copy of the answer which you directed to Mr. Logan on April 3, 1959, which the reporter may mark Plaintiff's Drake Exhibit 34.

(The document referred to was marked Plaintiff's Drake Exhibit No. 34 for identification.)

A. The only thing I can think of is that in January I must have run into him in New York. I know there was no planned get-together, at least I don't recall that there was, and it could have been at one of the industry meetings or something of that sort.

Q. Was Brunswick, Georgia at this time a location in which Pennsalt had any interest of its own?

A. I don't think so. The reason I hesitate on this is that some years prior to that time we had given some thought to a chlorine plant in Brunswick, and then those rascals, Mathieson, beat us to the gun and put a plant in there [fol. 1587] before us, so there was no need for a plant of ours there.

Q. So at the time of these discussions with Mr. Logan the likelihood is that Brunswick as a possible location would have been suggested by Mr. Logan rather than yourself?

A. I think probably, yes.

Q. Can you recall—strike that.

As I understand your testimony you simply have no recollection of the meeting in New York with Mr. Logan?

A. I do not.

Q. A reference is made, sir, in a memorandum to you

from Dr. LaLande, dated April 10, 1959, which I would like the reporter to mark as Plaintiff's Drake Exhibit 35.

(The document referred to was marked Plaintiff's Drake Exhibit No. 35 for identification.)

This was to an appropriation request committee meeting held January 23, 1959, with reference to chlorate and chlorate-perchlorate plants at Calvert City and at Brunswick, Georgia.

* * * * * * *

[fol. 1588] By Mr. Freed:

Q. Mr. Drake, early in March or late in February 1959 information came to the attention of Pennsalt employees, and particularly Messrs. Sloan and Eastman, that Wyandotte Chemical Company might be exploring the sodium chlorate market.

On March 12, 1959 Mr. Shanaman directed a memorandum to you which enclosed a copy of the memorandum to which I just referred, and said:

"You asked for comments and about the only thing I can say, Bill, is that Wyandotte would be a logical one to produce sodium chlorate because of their interest in propellents and pulp and paper."

I would like the reporter to mark this Plaintiff's Drake Exhibit 36.

(The document referred to was marked Plaintiff's Drake Exhibit No. 36 for identification.)

I ask you whether your examination of that memorandum [fol. 1589] recalls to you the nature of your interest at this time in the building up by other third parties of possible entrance and interest in the sodium chlorate field?

Mr. DeLone: I don't have a copy of that document available.

(The document referred to was handed to the witness for examination.)

The Witness: I would say it would be merely a matter of keeping track of what competition or potential competi-

tion might be doing, and I directed the memo to Fred Shanaman, he being the one who was most directly connected with our sodium chlorate activities. There is nothing more to it than that.

By Mr. Freed:

Q. Did it, to your recollection, have any immediate effect on anything you were doing in the sodium chlorate——

A. No, none whatsoever.

Q. —study?

A. No, none whatsoever.

Q. Continuing the correspondence between Mr. Logan and yourself in the early part of '59, Mr. Logan wrote to you on April 7, 1959 referring, I believe for the first time, to McIntosh or Lake Charles as possibly more desirable locations than the one you had previously mentioned, which was Brunswick, Georgia.

A. Yes.

[fol. 1590] Mr. Freed: I would like the reporter to mark this as Plaintiff's Drake Exhibit 37.

(The document referred to was marked Plaintiff's Drake Exhibit No. 37 for identification.)

By Mr. Freed:

Q. I ask whether this additional document in any way aids your recollection on the discussions that had previously gone on between you and Mr. Logan?

A. Well, inevitably, such discussion involved where might a good location be for—well, locations, what are the potential locations for a possible plant. Brunswick, Georgia, McIntosh, Alabama, and Lake Charles, Louisiana, I believe are all plant locations of Olin Mathieson, and, therefore, it would be logical for them to try to determine what the possibilities would be, power-wise, et cetera, at those locations along with Calvert or any others that they might look at. I think that is the gist of it.

Q. But can you recall specifically now either a discussion on McIntosh or the other discussions that you had with Mr. Logan?

A. No, I'm afraid not.

• • • • • • •

[fol. 1591] By Mr. Freed:

Q. Directing your attention to item seven on the second page of Exhibit 35, you will note that there are figures given for a 25,000 ton per year chlorate plant on which the return on investment is calculated at 27.1 per cent with a total [fol. 1592] Pennsalt investment of $3,169,000.

I wonder, sir, whether you can comment on whether or not that particular estimate was considered by Pennsalt management as a project which could proceed because of its proximity to the return on investment policy objectives of your company?

A. Absolutely not because of the cock-eyed accounting to which we referred yesterday, that is the thought that you could show it as a 50 per cent investment with half of it, the other half being borrowed at six per cent. I'm positive that we didn't give any consideration to that.

Q. If I understand you correctly, sir, you mean that for this calculation to have been correct, the total Pennsalt investment listed in the last column should have been doubled, is that correct?

A. In order to show what the return was on the investment, correct.

Q. Comparing the method of calculation of return on investment used on this Exhibit and that which was employed by Pennsalt in its Penn-Olin Chemical Company return on investment calculations, I wonder if you can tell us wherein the difference lies?

A. I'd be glad to tackle that again but I thought I clarified that one yesterday, didn't I?

Q. Perhaps in order to pinpoint my question, it would [fol. 1593] be well, Mr. Drake, to compare Exhibit 35 with a Penn-Olin Chemical Company return on investment calculation made by Pennsalt on September 21, 1960.

Mr. Freed: I would ask the reporter to mark this Plaintiff's Drake Exhibit 38.

(The document referred to was marked Plaintiff's Drake Exhibit No. 38 for identification.)

By Mr. Freed:

Q. For the purposes of this comparison, Mr. Drake, I would ask you to ignore the difference in the total cost of the project as reflected by these two different documents. In one case the project is around $7,700,000. On Exhibit 38 the total investment is $7,129,000.

Assuming, however, that the total figure is the same, is it not correct that the calculation made in item seven, page 2, Exhibit 35, excludes the borrowed portion of the investment in a 25,000 ton plant from consideration in determining Pennsalt's investment. Whereas, on Exhibit 38 the same exclusion is made, namely, Pennsalt is attributed with an investment of one and one-half million dollars even though its share of the venture is one-half of seven million plus. Is that correct, sir?

A. What you have said is correct.

Q. Would you explain to us why it is correct to exclude the loan from consideration in Pennsalt's investment on [fol. 1594] Exhibit 38, but it is incorrect, as I understand your testimony, to exclude the loan on Exhibit 35?

A. On Exhibit 38 in which Pennsalt's investment is shown as $1,500,000, that is all of Pennsalt's investment in a subsidiary of which it owns only 50 per cent. According to my understanding of accounting practices, in a non-wholly owned subsidiary, even though that subsidiary may borrow moneys, it is not necessary for the parent or parents to show on its books that liability, namely, the borrowed funds.

Therefore, neither that liability which becomes a part of the investment of that subsidiary, nor the liability which is the investment of the co-partner, needs to be shown on Pennsalt's books nor on the other parent's books, except for their share of the actual investment which, in this case, would be $1,500,000.

That is one of the important factors in the consideration of a joint venture on chlorate, the fact that our total investment and the total investment of Mathieson each is only $1,500,000 and even though a jointly owned subsidiary may borrow substantial sums, still the obligation, according to accounting practice, is that of the subsidiary and not of the parent, either parent.

Mr. DeLone: So long as there is no guarantee.

[fol. 1595] The Witness: So long as there is no guarantee on the part of either parent.

Contrary to that, obviously, perhaps I need not go any further——

Mr. Freed: Please do.

The Witness: If either company, or let's limit this to Pennsalt, if Pennsalt were to invest in a plant roughly $7 million referred to as the cost of this plant, it would be wholly owned by Pennsalt and, therefore, any liabilities of that operation, even though it might be a subsidiary, it would be a wholly owned subsidiary, is an obligation of the parent. The source of the funds used in the construction of that plant is immaterial.

You must take the overall picture in the parent company in respect to its borrowings; those borrowings, in whole or in part could be allocated to a chlorate project or a plastic project or any one or several projects, and you're only kidding yourself when you say that, well, these nearly $4 million were borrowed solely for this project and therefore for this project you only have to charge it with the six per cent interest that you would pay for that money. Accounting-wise you just cannot do it. Do you dig me?

Mr. Freed: I think so, sir.

(Laughter.)

[fol. 1596] By Mr. Freed:

Q. Would your answer be different if the loan made to or on behalf of Pennsalt in the financing of Penn-Olin Chemical Company were a loan guaranteed by Pennsalt?

A. I believe that if the loan to Penn-Olin, which let's assume is a jointly-owned company, is guaranteed half by Pennsalt and half by Olin Mathieson that in addition to the million five that each company is putting in as capital we would probably have to show as an obligation of the two parent companies the relative half shares of that loan.

Q. In that event, sir, would the calculations on Exhibits 35 and 38 be comparable? In other words, on this assumption that the parent companies do guarantee the loans, the basis on which the return on investment is computed in

Exhibit 35 would be as valid as the basis on which it is computed in Exhibit 38; is that correct, sir?

A. Let me answer it this way. If I understand your question correctly, if you look at the right-hand column on Exhibit 35 where it shows for Pennsalt a 31 per cent return——

Mr. DeLone: That's Exhibit 38, I believe.

The Witness: Is it, I beg your pardon.

By Mr. Freed:

Q. The later date is the later Exhibit.

A. I'm talking about this one here.

Q. That's 38.

[fol. 1597] A. 38, I'm sorry.

Where the return is shown as 31 per cent for Pennsalt on its million five, and we assume that the borrowings of Penn-Olin were equally guaranteed by Olin Mathieson and Pennsalt, we then guaranteeing half of the loan which is approximately $4 million total, or $2 million one-half, in order to calculate Pennsalt's return you would add to the million five Pennsalt's half of the loan, or another $2 million.

Therefore, the income to Pennsalt which is shown as $460,000 would have to be divided by not one million, five, but three million, five to show our rate of return on Pennsalt's investment.

Q. Then if I understand you correctly, sir, the critical element that enables Pennsalt to show a highly favorable return on investment in Penn-Olin, as indicated by Exhibit 38, is the ability in the joint venture format to have secured a loan without guaranteeing it, without Pennsalt guaranteeing it?

A. That's the nubbin of it.

Q. At the time the joint venture was negotiated between you and representatives of Olin, was the securing of an unguaranteed loan, unguaranteed by either parent, a prerequisite to the venture proceeding?

A. Yes, sir.

[fol. 1598] Q. And had your joint venture format been unable to achieve the securing of unguaranteed loans, there

would not have been a joint venture, at least as far as Pennsalt was concerned; is that correct?

A. That is a very reasonable assumption.

Q. I would like next, sir, to direct your attention to a memorandum dated September 6, 1960 to you from W. Cooper Willits on the subject, "Penn-Olin Chemical Company", which the reporter will mark Plaintiff's Drake Exhibit 39.

(The document referred to was marked Plaintiff's Drake Exhibit No. 39 for identification.)

Q. Directing your attention, Mr. Drake, to paragraph numbered 4 of Exhibit 39, and in particular to the last sentence, which states:

"I wouldn't particularly dwell on this point in that the Board recognized at the last meeting that while no formal guarantee might exist, there certainly would exist a moral obligation insofar as protecting the credit position of Pennsalt."

Can you tell us whether Pennsalt, in fact, recognized and recognizes a moral obligation to guarantee or stand behind its portion of the loan in Penn-Olin?

A. The Pennsalt Board and the Pennsalt management have been operating the company now for close to 111 years, and during that period of time I believe past Boards and [fol. 1599] past managements have built up, possibly the current Board and the current management have contributed to a feeling of dependability, of honor and moral stature in Pennsalt which we would defend vigorously. Therefore, I think that both the Board and the management recognized that although from an accounting standpoint, from a legal standpoint, there would be no obligation for this partially owned subsidiary's debt, it could not morally jeopardize the hard-earned stature, if you will, that had been built up over so many years by reneging on an obligation such as this.

I trust that answers your question.

Q. It does, and I thank you, sir.

Can you tell us then why it was of such importance to Pennsalt that it be able to secure an unguaranteed loan,

apart from the accounting principles that you have expounded previously?

A. In the appraisal of this and such other investments of this type, I'm not saying solely joint ventures now, we have been willing in our investment policy, although there is nothing written into the policy to this effect, to consider that although morally we feel that we would have an obligation to stand behind this type of a venture from an investment policy standpoint, we don't calculate the loan of an unguaranteed subsidiary in the capital investment on which we base our return, or our share of the return.

[fol. 1600] Q. Returning for a moment to Exhibit 35 and item 7 thereon, would the calculation of return on investment in item 7 there have been valid for Pennsalt, had it been able to set up a sodium chlorate plant at Calvert City to produce 25,000 tons of sodium chlorate a year as a subsidiary, which subsidiary was able to secure from a bank or other lending institution a loan unguaranteed by Pennsalt, the parent?

A. No, it couldn't.

Mr. DeLone: You referred to 35. You mean 32, I'm quite sure.

The Witness: No, 35.

Mr. Freed: It is 35.

The Witness: 35, item 7.

No, we couldn't, because it would be a wholly-owned subsidiary and the obligations of a wholly-owned subsidiary automatically become the obligations of the parent.

By Mr. Freed:

Q. Can you tell us why Penn-Olin, as a 50-50 joint company, was able to secure an unguaranteed loan, as indicated in the financial statements and particularly Exhibit 38?

A. To my knowledge it has not been able to secure an unguaranteed loan.

[fol. 1601] Q. Absent the effect of litigation on Penn-Olin then, what are the factors which would enter in, as you see them, into a determination by a bank or lending institution to loan money to Penn-Olin unguaranteed by the parents?

A. First they would obviously be interested in who the

parents were and the extent of their respective investments; is it sufficient to encourage them to make this a successful project, not leave the bank holding the bag, as it were.

Secondly they would want to know, obviously, the economics of that project. They would want to know the market potential for the product of that venture and the likelihood of the parents, or rather the joint company, being able to get tonnage required to make the venture a success, not necessarily a profitable venture so far as the bank is concerned, except enough profit to pay their interest and to amortize their loans which would be done through the depreciation of the plant.

Therefore in the economics study they would want to see whether there was enough, as the banker expresses it, cash throw-off to assure the bank of getting out under the terms of their loan to the subsidiary.

Q. Even in the case of an unguaranteed loan to Penn-Olin, would you expect the bank or lending institution to look to the financial resources and standing and reputation [fol. 1602] for standing behind the debts of the parent companies, even though there would not be any more than a moral obligation to connect those attributes to the joint company?

A. I'm sure that any banker would look more favorably upon a joint venture to which they were lending money if the parents were reputable, sound organizations. I doubt that a Penn-Olin venture type would get much money from a bank if the parents were, to put it in a matter of slang, fly-by-nights.

Q. I think your testimony in this particular area has been eloquent and leaves me speechless and I will pass on to another area.

(Laughter.)

I would like next to direct your attention, sir, to a memorandum of April 20, 1959 to Dr. LaLande from yourself on the subject, "Sodium Chlorate and Ammonium Perchlorate Plants". I would ask the reporter to mark this Plaintiff's Drake Exhibit 40.

(The document referred to was marked Plaintiff's Drake Exhibit No. 40 for identification.)

Do you recall, Mr. Drake, the circumstances which existed when you wrote this memorandum to Dr. LaLande?

A. Doesn't that tie into what we were looking at not long ago on the letter from John Logan, where he said the power [fol. 1603] costs at Brunswick weren't any good, and then wasn't there a note on the side of the memorandum that I informally told LaLande, and I think this was just satisfying him for the record that he's not to do anything more in Brunswick.

Q. That note was on April 10, 1959 and this memorandum is 10 days later.

I refer you to the language which states:

"You are correct that the Brunswick site has recently been eliminated from further consideration. For the present I see no reason for you to do any additional work on this pending receipt of word from Mathieson relative to a site they are evaluating in Alabama which they believe will be superior to Brunswick."

As of the time this memorandum was written, had Pennsalt made a decision not to proceed alone and only to enter the sodium chlorate business with Olin?

A. The sodium chlorate alone decision, leave the perchlorate out of it, was made back in '57, that we wouldn't proceed.

Mr. DeLone: Wouldn't proceed alone.

The Witness: Alone. I don't recall that any decision had been made at this stage of the game as to a combination chlorate-perchlorate plant.

[fol. 1604] By Mr. Freed:

Q. Had any decision been made at this time as to Pennsalt's entry into chlorate—perchlorate on its own?

A. That's what I meant to say.

Q. Had such a possibility yet been excluded from Pennsalt's own thinking?

A. No, I don't think so.

Q. Then is it fair to conclude that at least as of the date of this memorandum Pennsalt was still a potential entrant into the chlorate-perchlorate business on its own if economic studies bore out the desirability of such a project?

A. I think "potential" may be a little strong there. I would describe it more as a "possible". There was the possibility but, as I think we have covered over the deposition, a waning possibility.

Q. But as of this date the possibility has not been foreclosed?

A. I think that's correct.

Mr. Freed: I would like next to refer to a memorandum dated November 17, 1959 from William P. Drake to Messrs. H. C. Land and W. A. LaLande, to be marked Plaintiff's Drake Exhibit 41.

(The document referred to was marked Plaintiff's Drake Exhibit No. 41 for identification.)

[fol. 1605] By Mr. Freed:

Q. Can you recall from Exhibit 41 your conversation with Fred Shanaman with respect to his conversation with Olin?

A. My recollection is that while I was out on the west coast with Fred Shanaman he was—or expressed some concern, particularly in the light of Olin's request for additional chlorate, as to just what we were going to do with Olin because his demands for chlorate in the northwest were pressing him and he didn't want to continue to supply additional quantities, particularly to Olin, if it wasn't going to serve our purpose.

Now it could serve our purpose either with a possibility of a joint venture with Olin, or it would serve our purpose if we withdrew it from the market, having decided not to do it alone. I'm speaking now of chlorate in the east. He could put it to more profitable advantage up in the northwest. I think that's the gist of that.

Q. Do you recall whether in the course of your conversation with Mr. Shanaman out on the west coast he alluded to any joint venture discussions with Olin? Had he broached the subject in his prior contacts with Olin?

A. I don't know. I would imagine he probably would

have. It would have been discussed with Olin, between Fred and Olin.

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[fol. 1606] Q. I would like next to show you a memorandum to yourself from N. M. Walker, dated December 14, 1959, entitled, "Chlorates Eastern Plant", and marked as Plaintiff's Drake Exhibit 42.

(The document referred to was marked Plaintiff's Drake Exhibit No. 42 for identification.)

Can you tell us, sir, first who Mr. N. M. Walker was?

A. He was administrative assistant to me.

Q. Can you recall the circumstances that led to your request for this resume?

A. It could well have been in the notation I put on that memorandum you showed me recently of the 11/30 note that it came out in my file at that time and I asked him to review it, to try to condense in one place, have a person who had not been connected with it before, condense in one place the pertinent facts, and in his eyes what he thought the situation was as of that date.

Q. Would Mr. Walker's memorandum indicate to you that in fact it is not likely that the subject of chlorates in the east was discussed in a management meeting on November 30 due to the fact that no mention is made of any meeting or any document?

[fol. 1607] A. I think that's implied here. I couldn't vouch for it but it certainly is implied.

Q. And is Mr. Walker's review for you in Exhibit 42 a review which you accepted as an accurate summary of the events to date in the matter of chlorates eastern plant?

A. I think he gave me exactly what I wanted. It was a fresh look and he condensed in pretty good shape what appeared to be—it appeared to be where we stood on chlorates at that time.

Q. The final entry in 1959 is a memorandum to you from Mr. Land dated December 30, 1959 and marked Plaintiff's Drake Exhibit 43.

(The document referred to was marked Plaintiff's Drake Exhibit No. 43 for identification.)

Can you tell us when Pocono Manor meetings referred to in the first paragraph of Mr. Land's memorandum took place?

A. That was in October, I would think. In this connection I think, it points out in this memorandum there was no mention of chlorates at those meetings. This was a meeting of the management committee, incidentally.

Q. The management committee to which you referred and named previously?

A. Yes.

Q. In item 2 on page 1 Mr. Land refers to the fact:

[fol. 1608] "Chlorate alone would have to include a partner who is willing to supply 50 per cent of the capital at six per cent."

In light of the discussion which we have had this afternoon and yesterday, how can you explain this continual reliance on borrowing money at six per cent as a way in which people high in the Pennsalt management thought of a partnership in sodium chlorate?

A. Well, in justice to Hugh Land I think he knows better than to put it in those terms. Maybe I'm being overindulgent with him but I think he knows more about accounting than he indicates in that second paragraph as is written. Now he may have had in mind as he wrote it a joint venture where—well, similar to what finally was finalized in the Penn-Olin type, but I repeat what I've said several times in the past, that this item 2, as it's stated, is not in the cards, never has been. As far as I know it never will be on this or any other project.

Q. When you use the term "not in the cards" are you referring to the possibility that Pennsalt might borrow 50 per cent of the fixed capital for a project from an outside lending institution, or are you referring to the accounting practice demonstrated by some of the documents here of not including borrowed funds as Pennsalt investment in a return on investment calculation?

[fol. 1609] A. I'm glad you raised that question because, obviously, I meant the latter. I'm sure we will, from time to time, borrow moneys but not for a specific project and account for it in that fashion.

Mr. Freed: I wonder if we could take a five minute break.

(Recess.)

By Mr. Freed:

Q. I believe you have previously referred, Mr. Drake, to a meeting with Olin in New York in January of 1960 at which the question of the joint venture was taken up, and the date of that meeting, as will be indicated in a document that I can introduce into evidence a bit later, was January 21st.

Can you enlighten us on the sequence of events between the end of 1959 and January 21, 1960, by which the meeting between Pennsalt and Olin in New York to discuss the joint venture came about?

A. My recollection is that probably Hugh Land and John Logan discussed this. But what was that date in New York?

Q. January 21.

A. January 21st?

Q. Yes, sir.

A. Does anyone have a calendar for 1960?

Q. It was a Thursday.

[fol. 1610] A. I wanted to see what Thursday it was.

(Mr. Subak handed a calendar to the witness.)

My guess is that probably John and Hugh Land ran into each other at the Chlorine Institute meeting in New York which I think probably was either the latter part of the week of the 11th or the first part of the week of the 18th. Incidentally this could well have been—now it comes back to me a little—in this regard it could well have been when I talked to John Logan—before lunch—remember before lunch I was trying to determine when I might have talked with him in January of whatever the year was. These Chlorine Institute meetings are the annual meetings always in New York in January, and it could well be that meeting where I saw him.

Q. That meeting in 1959?

A. Yes. I remember I referred to it as an industry meeting, and its the Chlorine Institute, I know, meets then, and I think both may have been the times when first I talked with John and then later Hugh talked with John. I don't

think I attended the Chlorine Institute meeting in 1960, in fact I'm pretty sure I didn't, so it must have been Hugh.

Q. And after the meeting between Messrs. Land and Logan at the Chlorine Institute, did Mr. Land come and report to you on his conversation?

[fol. 1611] A. If it was the week of the 18th he well could have called me on the phone and have stayed over there, because the meeting was in Olin Mathieson's office, wasn't it, on the 21st? Isn't that what they said?

Q. Yes, sir.

A. So that could well have been it, to explore with Olin Mathieson, and I think this is the first meeting that Mr. Block was in attendance, and for a very, very brief period, Mr. Osborne. He just poked his head in and said, "Hello" and out he went, and this was this 21st of January meeting.

Q. Then prior to the 21st of January you are aware of no other meeting between Pennsalt and Olin personnel in 1960 apart from the one you have just mentioned leading up to this meeting?

A. No. There could well have been but I don't recall it, and I am in a sense guessing that this may have been the mechanism that set off the plan to have the 21st meeting.

Q. I would like to show you a memorandum to the file by Mr. Clem dated January 5, 1960 entitled, "Pennsalt—Olin Mathieson Sodium Chlorate", which will be marked Plaintiff's Drake Exhibit 44.

(The document referred to was marked Plaintiff's Drake Exhibit No. 44 for identification.)

[fol. 1612] Mr. DeLone: I think you said January 5. You meant January 25 I believe.

By Mr. Freed:

Q. Does Mr. Clem's memorandum refresh your recollection as to the conversations which took place in Olin's New York office on the 21st of January?

A. I'm not quite as hazy on this one as I have been on some of them. That leaves plenty of room for haze, I'm afraid.

Q. Can you recall, sir, how long the meeting lasted?

A. Oh, I think we got there about 10:30-11:00 o'clock.

We enjoyed one of Mr. Block's rather unusual luncheons which was served in the conference room. I think it lasted until about 2:00 or 2:30.

Q. On the basis of the brief notes made by Mr. Clem, coupled with your own recollection, can you tell us which party made a proposal and what that proposal was?

A. I can't recall who specifically spoke first, as it were. I'm sure that each of us approached this meeting with a similar thought in mind, to explore whether there really was an opportunity for a joint venture. Now who actually opened the conversation I really don't recall.

Q. Can you recall whether there were any major items of policy that drew the attention of the parties for the [fol. 1613] principal part of your meeting?

A. Most of the items here listed in the memorandum of January 25th are details, important ones, but details. I would imagine that what took as much of the time of the meeting as anything would be a preliminary exploration of the financial reasons why a joint venture would be attractive to both Olin and ourselves, this mechanism that we've dealt with many times in the last couple of days.

Q. As you can now recall it, did the parties approach this meeting with the assumption that the joint venture was desired by both, the only question being whether it was economical and what the details would be?

A. No, I'm pretty certain that we approached it with the idea of exploring with the two companies, between the two companies, whether or not there was really an area of mutual benefit in chlorates via the joint venture.

Q. Then despite all of the conversations and commercial relationships which had gone on in the preceding years, the parties did not approach this meeting with a view toward simply cementing a joint venture which had been decided on previously?

A. I don't think so, even at that stage. You, unfortunately, never met and, unfortunately, cannot meet Mr. Block. To my knowledge this is the first time Mr. Block ever came into the picture. Mr. Block was a very fine [fol. 1614] substantial element, in my estimation, in the Olin Mathieson organization. I got the impression, which I still retain, that Mr. Block may not have concerned himself —he was the head of the chemicals division at that time—

may not have concerned himself to any great extent with what "the boys" might have been playing around with. I think really what must have happened, this is obviously conjecture, but I think it's a reasonable conjecture, is that somebody finally got Mr. Block's ear and he said, "Let's have a look at it."

To give you a little more background, Mr. Block I think was primarily a production man, his background was production, although he had good commercial instincts, but the impression was that he was a very influential person in the Mathieson organization, Olin Mathieson organization, a man of few words and, as evidenced, a man of, well, either let's get it done or forget it.

Q. With reference to the subject of plant location, reference is made in Mr. Clem's file memorandum, Exhibit 44, to Calvert City, Kentucky and Chattanooga, Tennessee.

What can you tell us about the consideration given at the meeting to these two locations?

A. They're both on the TVA, therefore both have available the low cost power that's required for a plant. They being the only two—I won't say that, Calvert being our [fol. 1615] only plant on the TVA. I'm not certain about Olin Mathieson but I know that they had an operation at Chattanooga and were contemplating the possibility of expanding that operation. I don't recall whether they ever did, but they did mention they were thinking of expanding it from, as I recall it, the facilities at Calvert being a going electrolytic entity, were weighed against the advantages of Chattanooga, those advantages being closer proximity to some of the markets which we would be covering with chlorate. They, however, had the disadvantage of not having an electrolytic operation there. Salt is one of the ingredients for sodium chlorate and I believe I'm correct, there was no salt being brought into Chattanooga at that time. We were bringing salt and still are by barge to Calvert.

But before any decision could be made we undertook these studies as to which was the better location.

Q. When you refer to the proximity of Chattanooga to some of the markets, what did you have in mind as the markets?

A. Largely the pulp and paper industry.

Q. Were other potential markets for sodium chlorate discussed?

A. Not to any degree. I don't think they even discussed it at the first meeting.

Q. The focal point of attention was on pulp and paper? [fol. 1616] A. (Nodding head.)

Mr. DeLone: Did the witness answer that?

The Witness: I shook my head, I'm sorry. Yes.

I think there's another recollection which might be helpful to you of this meeting. The approach that we both expressed, as to location of plant site and any other aspects of this thing, was that if it were to be a successful venture both of us would have to look upon it as what was best for that particular venture. If the economics, for example, said that Chattanooga was the better location for the plant, we would choose Chattanooga, just as if after the technical group evaluated the various methods of manufacturing sodium chlorate the economics—I'm speaking broadly now—dictated that it should be the Vickers-Krebs cell, we'd put the Vickers-Krebs cell in.

I merely cite this as the approach that the two companies took to this venture and I think it's rather significant.

By Mr. Freed:

Q. In terms of Olin's mention of Chattanooga, did they indicate at that time the kind of plant they were contemplating building at Chattanooga?

A. As I recall it was an electrolytic process, that is as much as I recall of that.

Q. As you recall it, did the Pennsalt witnesses advocate [fol. 1617] Calvert City and the Olin personnel advocate Chattanooga or did they come up in a more neutral context?

A. My recollection is those obviously in Pennsalt who were most directly connected with the operations at Calvert definitely would like to see the plant at Calvert. I don't recall that there was anyone there from the Olin Mathieson group that was as directly connected with Chattanooga as, say, Hugh Land was with Calvert City.

Q. Then at this particular meeting the two locations were just thrown up as alternatives?

A. With no foregone conclusions as to where to go.

Q. And no decision was reached?

A. None whatsoever.

Q. With respect to the sodium chlorate cell to be used, who brought up the subject of the Krebs cell?

A. I imagine that Olin Mathieson brought up the Krebs cell.

Q. As you recall it had Pennsalt had any experience with the Krebs cell or made any study on it?

A. We knew something about it. Of course we've always tried to keep abreast of how the possible cells might do.

Q. Do you recall the extent of experience with the Krebs cell that any of Olin's people might have talked about?

A. No, I don't. There was not too much time devoted [fol. 1618] to either Krebs or the Pennsalt cell at this meeting particularly, because I think it points out here that—well it doesn't in this memorandum, but I think subsequent to this a technical task force was set up and a sales task force was set up to evaluate these things. I know that was true in the case of the technical task force.

Q. With respect to the subject of operations, paragraph number 3, the first sentence indicates:

> "After considerable discussion it was agreed that probably the best arrangement would be for Pennsalt to make the product and for O.M. to sell it."

Can you recreate for us the issues that were discussed before this conclusion was arrived at?

A. I think the issues undoubtedly were, who is best qualified to do what, who had the know-how, experience.

Q. And was it in this context that Pennsalt referred to or relied on its own production experience and that Olin pointed to its own background in sodium chlorate production technology that you referred to yesterday?

A. I'm sure it crept into here. I mean, after all, we were each putting our best foot forward and we were undoubtedly saying how much we knew about the manufacture of chlorate. We were even saying, I'm sure, in these negotiations how much we knew about the sale of chlorate. [fol. 1619] Again you have to take that statement in light of the negotiations, as it were, that were going on.

Q. As you can recall it, did Pennsalt give any estimate

of its own sales capabilities here as being able to contribute to the selling operations of the joint company?

A. I don't think it got that far on this meeting.

Q. Can you recall who took the lead in promoting Pennsalt as a potential seller?

A. Since I didn't have to sell it I probably did. I mean I wouldn't be responsible for selling it, so obviously each of us, as I said before, was trying to put his best foot forward.

Q. And that would characterize pretty much the negotiating technique of both sides with respect to both selling and producing——

A. Yes.

Q. —sodium chlorate?

A. Yes.

Q. Mr. Clem makes note of the possibility that Pennsalt might act as sales agent in certain geographic areas. To what did that have reference?

A. It could have had reference to the agricultural chemicals field; it probably did. How those differed geographically from the pulp and paper field I'm not particularly clear in my mind.

[fol. 1620] Q. Was there any conclusion or tentative conclusion reached at this time as to Pennsalt being a selling agent in some areas?

A. No conclusion was drawn then, no.

Q. The reference that is made here to the Sun-Olin venture, can you tell us what relevance that had to the discussions that were taking place? What from the Sun-Olin venture was of value as a precedent in terms of the kind of venture you were setting up here?

A. I think that refers to simply the financial mechanism —I'm not familiar with it even to this day of what the Sun-Olin financial venture is, any of the Sun-Olin venture. I think it probably also dealt with, preliminarily, with who did what in the Sun-Olin venture.

As I recall it I think Sun produces the stuff and Olin sells it; I don't know.

Q. With reference to the arrangement for producing and selling the product that we referred to before, was there any definite decision reached at this time even on this question? It says here it was agreed it would probably be the best arrangement for Pennsalt to make it and Olin to sell it.

A. I think it states it was just leaning toward the likelihood that's the way it would be set up, but until we had really looked into it we could both keep an open mind [fol. 1621] on it.

Q. How did it happen that Pennsalt won out in terms of getting its name first in the joint company's name other than the obvious harmony of the name as it came out, Penn-Olin?

A. I think it's a combination of the harmony of the name and the graciousness of Mr. Block.

Q. The last line of Mr. Clem's memorandum on page 2 refers to other questions raised at the meeting which were:

"Matters of policy to be resolved between Messrs. Block and Drake."

what was——

A. I'm sorry, I lost you.

Q. The very last line of the second page of Exhibit 44.

A. Undoubtedly that's referring to the matter which I said probably took up most of the meeting, namely, how will you structure the thing financially.

Q. Are there any other important areas of discussion that took place at this meeting in New York that you can recall in light of the discussion we have had about Mr. Clem's memorandum?

A. I think he covers it pretty well here. I don't recall any others other than what I just mentioned.

Q. When was the next time that you participated in a meeting with the Olin representatives with respect to the [fol. 1622] joint venture?

A. I think our next meeting was February 11th. I think it was scheduled for February 11th. I don't know whether it took place then or not; I don't remember the date.

Q. I believe that was the day on which the agreement, the joint venture agreement was signed.

Then between the 21st of January and February 11 you personally did not participate in the negotiations with Olin; is that correct?

A. That is correct, as I recall it.

Mr. Freed: I would like to have the reporter mark as Plaintiff's Drake Exhibit 45 a document which appears to be in Mr. Drake's handwriting that is not otherwise identi-

fied and I will attempt to identify it by your examination of it.

(The document referred to was marked Plaintiff's Drake Exhibit No. 45 for identification.)

By Mr. Freed:

Q. You will note that in the upper right-hand corner I have written "Drake 2/4/60", but I do not wish you to be prejudiced in your evaluation of that document by our speculation as to you as the author and the date on which these notes were taken.

A. I think this is—this is my writing and I'm sure that this is my attempt to jot down for my own and Mr. Willits' [fol. 1623] benefits some ideas as to how we might approach our next meeting with Olin Mathieson.

Q. In other words, Exhibit 45 is not the notes that you took at any particular meeting, but rather the notes that you made as a preliminary for the neogitations?

A. I think actually with this D-11—W-1, to me that indicates that this is an informal chat I had with Cooper Willits and these are our ideas as to how we might approach the next meeting.

Q. Would you be good enough, Mr. Drake, to read into the record the remarks which are handwritten on Exhibit 45?

A. "1. O.M. finance plan. 2. Pennsalt build and operate plant at fee. 3. O.M. sell output except to Chipman and Ag-Chem on which Pennsalt to get a commission on sales. 4. Pennsalt's fee to be based upon a capitalized 'know-how' and services. b. 200,000 per year management fee. c. Per cent of any reduction in cost due to identifiable efforts on our part e.g., yields.

"Assuming we capitalize our investment (know-how and services) we should show a 25 per cent return before taxes."

* * * * * * *

[fol. 1624] Mr. Freed: I'm concerned lest Mr. Drake not be able to completely decipher his notes because of the quality of the document, but if he's been able to—

The Witness: No, I think I got it all right. I can add

something more to this because it's got Cooper Willits' phone number on it and this is the result of a phone conversation between me, undoubtedly at home, and Cooper Willits, and that's why the "D-11 to W-1", that's what it is. But I'll be darned if I know the date. Is this your guess as to the date?

By Mr. Freed:

Q. That was my guess. Now I have reason to believe that it's wrong but I don't know what the correct date would be. At the time we put the date down we had a mass of documents around the time when meetings were going on and when we classified them for the purpose of putting them in notebooks.

A. Well, if you have this, we must have it somewhere.

Mr. DeLone: Oh, yes.

The Witness: I would hope. Maybe we can find out what the date is.

Mr. DeLone: Offhand I don't believe there is any date on it.

By Mr. Freed:

Q. Does the reference in these notes to "O.M. finance [fol. 1625] plant" refer to a proposal by Pennsalt that Olin put up the money for the venture or—

A. I don't think this proposal was ever made, you see.

Q. Can you tell us which, if any, of the items on this list were actually proposed by Pennsalt in any of the meetings to your knowledge?

A. To my knowledge I don't think any of them were, actually. These were some notes. As I recollect now that I was at home in the evening thinking various ways that we could approach this thing and I called up Cooper and said, "Here's an idea", and it's obvious we never proposed it.

Q. The reference to Olin selling the output except to Chipman and Ag-Chem. What was the basis on which you made the note concerning Pennsalt's possible sale of the output of sodium chlorate to Chipman and Ag-Chem?

A. Because we felt that we probably had particularly better ability to sell in the agricultural chemicals field which includes Chipman.

Q. Is Chipman the largest of the agricultural chemical companies?

A. Chipman, among their other activities, they're in the agricultural chemicals, and among their other activities they have, particularly in the west, sold for many years our chlorate to the railroads for weed killing along the rights-of-ways. So we felt that our relationship with Chipman [fol. 1626] probably was a stronger one than that of Olin Mathieson.

Q. Do you recall how that particular phase of the negotiations worked out, as far as Pennsalt's receiving the right to sell to Ag-Chem users, including Chipman?

A. I don't think it has ever been resolved. That doesn't say it hasn't but I'm not aware of it.

Q. Turning your attention, sir, to the meeting on February 11, 1960, the date on which the joint venture agreement between Pennsalt and Olin was executed, how was the question of location of the plant resolved?

A. I'm not sure it had been resolved at that point. Had it or was it or had it been resolved? I don't recall. Are there any minutes of that meeting?

Q. Do you happen to have a copy of the press release with you? I don't have it here, I do have in my own office.

A. Maybe it had been resolved because I think maybe the press release did indicate where we were going to put the plant.

Q. My recollection, sir, is that it did.

A. As I think further on, I think it did.

Q. Do you recall the reasons why Calvert City was chosen over Chattannoga?

A. As I recall it Chattanooga showed some freight advantages but the combined task force felt that the advantages of an electrolytic plant at Calvert, with salt coming [fol. 1627] in, the facilities all there, and many of the services, that we could much faster build a plant and have it in operation at Calvert than we could at Chattanooga, and that advantage offset some freight advantage that might accrue to the Chattanooga plant.

Q. Why was the element of time important, as you can recall the discussion?

A. Well I'm certain that the recognition, as has been brought out in these meetings yesterday and today, that

if we were going to go ahead we had jolly well better get our plant built and get about our business, because after all, we were creating a new competitor, and we had some pretty stiff competition already in the field. The wisdom of that is further brought out with the addition of then another competitor, as you brought out yesterday, and a pretty sizeable one at that, incidentally.

Q. You are speaking now, sir, of Pittsburgh Plate Glass?

A. Yes.

Q. In characterizing them as sizeable are you referring to the size of the Pittsburgh Plate Glass Corporation as a whole?

A. Both that and its chemical operations.

Q. Do you have any knowledge of the size of the chemical operations of Pittsburgh Plate Glass?

[fol. 1628] A. No, as I indicated yesterday I think it's quite substantial but I don't think they've ever broken down what their chemical sales are, the total.

Q. I believe I have showed you earlier, though it has not been marked for identification, a draft statement (handing document to the witness) which is typed with some hand-written interlineations and at the top it says, "For Board", the last sentence of which I would appreciate your reading and then explaining what the background of it was.

A. "Timing is of extreme importance because the market area considered can only handle one more significant producer at this time."

Q. Can you recall the circumstances in which that factor first entered into any of the discussions to which you were party?

A. Well, at that time I think we knew, as has been brought out in the testimony in the last couple of days, the interest of Wyandotte Chemicals, who had recently or fairly recently built a plant in Geismar, Alabama—not Alabama, Louisiana. We had heard, as was brought out in the testimony in one of those memoranda, that possibly Solvay and American Potash arrangement on their sales arrangement might be terminated, the implication being that Solvay might decide to build their own plant, and there may have been others I don't know, but certainly there were indications that others were or might be considering [fol. 1629] a sodium chlorate plant in the southeast or in the south. I'm sure that with that information in mind, and

having decided finally that we had found a mechanism for proceeding with the chlorate plant after many years of study and the like, the logical thing to do was, once having made up your mind to do something let's do it. And I think that's all that that—I know that that's all that that last sentence states or implies.

Q. Was it your hope and contemplation at the time Penn-Olin was formed that its announcement and its creation would at least save you from facing any additional competition in that market than that which already existed?

A. Let me answer that this way. It was our belief that the southeastern market could stand one more supplier. Now assuming that one of the others who was contemplating going into the southeastern market had come to the same conclusion, I think if I were in their shoes and I read of an announcement of that fourth supplier, I would certainly take a second look.

Q. I believe you referred to a fourth supplier. Who were the other three?

A. Did I say fourth? Oh, Hooker, Potash, and what was the third one—well, that's silly.

Well, there's where I slipped. I didn't mean to say fourth [fol. 1630] supplier, another supplier.

Q. At the time your venture agreement was signed mention was made of other chlorates and perchlorates that Penn-Olin was interested in, with particular references to ammonium perchlorate.

Mr. DeLone: You mean in the agreement itself, are you talking about, mentioning the agreement itself? Just so I understand your point of reference.

Mr. Freed: Yes, sir, I believe that's correct.

By Mr. Freed:

Q. With reference to ammonium perchlorate can you recall any specific discussion in your meetings with Olin as to the construction and operation of an ammonium perchlorate plant in conjunction with the sodium chlorate plant?

A. The only discussion I can recall at that time was that when, in defining the scope of the activity of the Penn-Olin venture, the possibility of making ammonium perchlorate and possibly potassium chlorate was considered although

I think we both quickly agreed that that would be something that we would put down the road, particularly in light of our knowledge at least of perchlorate not being in the demand that back a year or two we thought might develop. [fol. 1631] Q. Is it a fact then that with respect to the production of any derivatives of sodium chlorate that matter was left for future agreement by the parent companies of Penn-Olin?

A. First let me say that I don't know of any other, that I can recall any other derivatives of sodium chlorate although I could be wrong on that and probably am. I think we felt at the time that we, or the board of the joint venture, would evaluate either an expansion of chlorate or the extension of our chlorate operations into these derivatives that you speak of on their merits at the time at some future date when they might be proposed.

Q. With respect to the geographical area in which Penn-Olin would operate and in which its sales would be made, was there any—what do you recall of the discussion with respect to the sales area of Penn-Olin?

A. I think we all recognized that the bulk of the sales would be made in the southeast, it being the logical market area for a plant in that location.

Q. Was there any discussion of the potential conflict between the selling operations of Penn-Olin and of the then existing marketing operations of Pennsalt in the west?

A. To this degree only, that both Penn-Olin and Pennsalt in their respective operations would probably—well, let me restate that a little—that's all right—would probably [fol. 1632] find themselves in competition in some areas and that in such instances each organization, that is Penn-Olin and Pennsalt, would naturally take care of its own interest.

Q. In other words to the extent that there was any overlap—

A. They would be competitors.

Q. It would be an overlap rather than avoidance of it?

A. Absolutely.

Q. In this regard what, if anything, was said about the Ag-Chem field and Chipman about which some of the Pennsalt people had previously expressed a desire to maintain as customers?

Mr. DeLone: The previous reference was, as I remember it, what you referred to was Pennsalt acting as a sales agent for Penn-Olin in those matters.

Mr. Freed: I thank you and I withdraw the question.

By Mr. Freed:

Q. With respect to sales to the agricultural chemical market and to Chipman, what was the discussion at the February 11th meeting with regard to Pennsalt acting as sales agent?

A. I'm not at all certain it came up at that meeting. If there has been any discussion of it at all I think it has [fol. 1633] probably been at the level of the task group working on the sales end of it.

Q. I believe you've already testified that you were not aware of the disposition, if any has been made, of that particular subject?

A. No.

This is yours, incidentally.

(Returning document to Mr. Freed.)

Mr. Freed: Perhaps to keep the record straight I would ask the reporter to mark as Plaintiff's Drake Exhibit 46 the draft document previously presented to Mr. Drake and from which the last sentence was read into the record.

(The document referred to was marked Plaintiff's Drake Exhibit No. 46 for identification.)

By Mr. Freed:

Q. Turning back for a moment to the question of Chattanooga, did I correctly understand you to say that the reason for Chattanooga's rejection in favor of Calvert City was that the element of time and the availability of existing facilities tipped the balance in favor of Calvert City despite the freight advantages which Chattanooga otherwise had, or were there additional reasons?

A. I think there may have been one other asset there and that is, that once the task force had decided for—or there was an indication that probably they'd use Pennsalt [fol. 1634] know-how, although this had not been decided by February 11th, and inasmuch as Pennsalt was going to

operate it, there were added advantages in having the plant at Calvert.

Q. Had the decision to make Pennsalt the producer been firmed up between your January 21st meeting and the February 11th meeting, or was it firmed up only at the meeting on February 11?

A. I'd have to know whether they had had any sessions on the technical end between those two meetings and I don't recall that. I know that it certainly was decided finally at the February 11th meeting that Pennsalt would be the producer, or would handle the production.

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[fol. 1635] Q. Turning your attention back to Plaintiff's Drake Exhibit No. 19 which was introduced yesterday, being Pennsalt's Capital Investment Policy No. 1, I wonder whether you can tell us the date on which the Capital Investment Policy of Pennsalt changed from a figure of 30 [fol. 1636] per cent to one of 25 per cent?

A. I think it was somewhere in '50—oh, let's see, I think the first one was in '53 and the change was '58.

Q. The explanation on Exhibit 19 of Pennsalt's Capital Investment Policy poses three alternative situations in which the return on investment will be matched against certain characteristics of the project.

I wonder with reference to the Penn-Olin, or the sodium chlorate in the east project of Pennsalt, you can tell us which of these three alternatives was applicable to your company's evaluation.

A. It would be covered by the first two paragraphs under "Rate of Return". Do you wish me to repeat those?

Q. It's not necessary at all, sir.

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[fol. 1637] A. During the period '55-'59 did Pennsalt have the facility to erect and sell the output of a sodium chlorate plant of a capacity less than the 25,000 tons?

Q. That is my question, yes, sir.

A. The only answer to that could be "yes".

Q. In each of the cases which we have gone through, is it a fact that such projects were rejected by Pennsalt because

the return on investment did not meet the policy objectives of the company?

A. That's correct.

Q. Where the return on investment was less than policy objectives, less than 25 per cent, is it a fact that Pennsalt [fol. 1638] could have made some money on those projects?

A. That is a correct statement.

Q. And the rejection of projects during this period was based not on the inability to make money but on the inability to make sufficient money to justify the venture in terms of the company's investment policy?

A. Yes. At some point, however, you wouldn't make any money.

Q. Concerning ourselves——

A. There could be conditions in a smaller plant where you wouldn't make any money. There was no guarantee that you could make money on any one of those smaller plants.

Q. Well, where, for example, the return on investment was calculated to fall in the 10 to 15 per cent range, and where there was no doubt that Pennsalt did have the marketing ability to sell the output of a plant of that kind, would Pennsalt under such estimates be able to make some money on the project?

A. Yes, I would add there again that probably at some loss on some other project which would meet the capital investment standards that we have set.

Q. When you speak of loss you speak of loss of additional income?

A. Yes. In other words if we had put the money into this venture at a 10 to 15 per cent return, obviously that [fol. 1639] money was not available, would not be available, to put into a venture which would realize our standard.

Q. Would it be correct to say that the Penn-Olin venture represented the most profitable way in which Pennsalt found itself able to enter the sodium chlorate business of all the alternatives that it faced during the years 1955 through 1960?

A. Yes.

Q. And is it a fact that the joint venture enabled Pennsalt to participate in the construction and operation of a

larger plant with a greater sales potential than any of the plants it considered on its own?

A. With the exception of the combined—if it had materialized—the combined chlorate—perchlorate plant.

Q. And is it correct that the Penn-Olin venture enabled Pennsalt to enter the sodium chlorate business by acquiring a sales force or sales agency rather than building a sales force?

A. I don't think you could say that Pennsalt acquired a sales organization.

Q. If I might rephrase the question, acquired the services of an existing sales organization rather than build its own?

A. I would prefer to state that we are utilizing an asset [fol. 1640] which our partner has in this venture.

Q. And is it true that the joint venture with Olin enabled you to enter the sodium chlorate business in the east with less competitive risk than you would have encountered had you entered that market on your own?

Mr. DeLone: Would you explain what you mean by "competitive risk"? The term is a little obscure to me.

By Mr. Freed:

Q. In terms of Pennsalt's ability to meet competition in the sodium chlorate business, is the venture which it undertook with Olin a venture which is better able to compete in the sodium chlorate business than one which it might have undertaken using Pennsalt resources alone?

A. For the size of the plant required to get a return which would meet our standards and considering the time element—by that I mean that with a sales force in being, our partner can or should be able to sell chlorate better in the southeast now, better able than we would be. I would not, and I don't think I could, admit that in the event that we chose to establish a sales organization in the southeast, go through the time, training, the get-acquainted procedure to which I referred yesterday, that we couldn't be, in time, just as capable of selling chlorate in the southeast as anyone else.

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[fol. 1641] By Mr. Freed:

Q. I think that's all we can ask.

In an article of a different vein appearing in "Chemical Week" on March 25, 1961, there is a description of the advantages which a joint venture has over other methods of corporate growth. I would like to read to you several of these advantages to inquire which of them, if any, are advantages which accrued to Pennsalt or to Olin or to the market place from the formation of Penn-Olin.

The first is: "Joint venture can get a new product to market faster." That wouldn't be applicable here would it, sir?

A. No.

Q. The second is: "Research and production costs are likely to be lower."

A. I can't see research cost being any lower. If the joint venture enables the construction of a larger plant, naturally your production costs are going to be lower, assuming you can sell the output of the plant.

Q. The third is: "Increased borrowing power."

A. I suppose there are instances where that could be [fol. 1642] considered a factor. In our particular instance I don't think it has any bearing on it.

Q. Another advantage is: "The chance to diversify into product lines not handled by either parent company."

A. I can conceive that if you add the word "profitably" after the word "diversify" that could play a part in some instances.

Q. And another of the many factors mentioned here is "The opportunity to upgrade products." Is there a quality enhancement which may result from Penn-Olin?

A. You're talking now from the broad terms of joint ventures?

Q. No, sir, I mean only to direct your attention to Penn-Olin.

A. Oh, would you repeat the question then, please?

Q. The question is whether the opportunity to up-grade products is a possible advantage of the Penn-Olin venture?

A. No.

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[fol. 1643] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 392C

Philadelphia, Pennsylvania.

EXCERPTS FROM PRETRIAL ORAL EXAMINATION OF WILLIAM P. DRAKE, ON SEPTEMBER 28, 1961

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[fol. 1644] (Draft of press release dated February 5, 1958, was marked Plaintiff's Drake Exhibit 48 for identification.)

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[fol. 1645] By Mr. Freed:

Q. Mr. Drake, since the time of your deposition in August, Pennsalt has produced and furnished a copy to the Government of the minutes of the appropriations committee meeting No. 15 dated January 29, 1959. This document was marked yesterday as Plaintiff's LaLande Exhibit 11 for identification. At the time of your deposition in August, I believe you testified that you could not recall the details of your conversation with Mr. Logan in New York in January, 1959, and did not know whether any minutes of the appropriations committee meeting might have reflected information on that subject.

• • • • • • •

[fol. 1646] A. No, I am afraid it doesn't.

Q. Then, directing your attention solely to what went on at this committee meeting, can you recall what was said on January 29, 1959, regarding the exploration of a joint venture with Olin in the East on a chlorate-perchlorate plant?

A. I am not at all certain that we had talked with Olin about perchlorate prior to this. We may have; I don't recall it. It is conceivable that at this meeting we discussed —we had been discussing with them chlorate—it is conceivable at this meeting that we internally evaluated in our

own minds whether it would be desirable to talk with Olin not only about chlorate but chlorate and perchlorate.

Q. I believe you stated that prior to this time, your conversations with him had related only to chlorate. If you will recall, sir, Plaintiff's Drake Exhibit 27 referred to conversations between Mr. Logan and you and other Pennsalt people on the subject of chlorate and perchlorate in Febru-
[fol. 1467] ary, 1958.

A. Well, if that's documented, well, then—

Mr. De Lone: Let him see whatever exhibit you are referring to for a minute, please. You are talking about the February meeting with Logan.—

Mr. Freed: The February 4, 1958, memorandum of Mr. Logan.

Mr. De Lone: Let's let the witness see that, then.

The Witness: Wasn't that in reference to my mentioning that we were putting—we were going to make an announcement of a perchlorate plant in the Northwest? Since he wrote this probably right after the meeting, and I am recalling it from memory, I think probably this—I would put more weight on this than my recollection.

By Mr. Freed:

Q. And by "this," you are referring to Plaintiff's Drake Exhibit 27?

A. Well, I am talking about the question I just endeavored to answer about whether or not we had discussed perchlorate with Olin Mathieson prior to this April—January 29th meeting.

Q. And I only wish to make clear that the document which you examined, when you talked about his recollection, was the February 4, 1958, memorandum?

[fol. 1648] A. Yes.

Q. By Mr. Logan to the files, is that correct, sir?

A. Yes, and I—all I am saying is that since he wrote this right after our meeting, undoubtedly I would be more inclined to put more weight on this document than on my memory.

* * * * * * *

[fol. 1649] By Mr. Freed:

Q. My question, Mr. Drake, is whether the appropriations committee meeting minutes produced today in any way refreshes your recollection as to the course of events regarding the chlorate-perchlorate plant in the East which was discussed at your last deposition and which is referred to in Plaintiff's Drake Exhibit 32 which was the minutes of the meeting on November 3, 1958. I hand you a copy of that document so that you can refresh your recollection regarding the subject matter of the question that Mr. De Lone took exception to.

A. As is indicated in this Drake Exhibit 37, is it—oh, Plaintiff's Drake Exhibit 32—after said December—November 11, '58 meeting—sorry, November 3, '58 meeting; reported on November 11—I am sure I must have mentioned to the board the possibility of our putting in a plant at Calvert City.

Subsequent to that, we went ahead and expanded the plant at Portland. Our experience almost immediate and virtually running up to the present time with perchlorate at Portland has not been the best in the world and I am sure that with that experience starting when we first enlarged the plant, very little if any further thought was given for some time about a plant in the East. The Portland plant, the first unit was really a pilot plant, the expansion of that to 2,000 tons was, well, some would call it a commercial unit, some would call it a semicommercial unit, one of the [fol. 1650] purposes of which was to determine whether we could make a product of specifications which would meet the demands of various Government agencies or their authorized contractors and we have had difficulty with the—some of the applications, difficulties which I think are gradually being worked out.

We have also had the difficulty of disposing of the tonnage both for the specification reason as well as the demand reason. Other than that, I don't think I have anything I can add to what I have already said about this, the plans for the express plant in the South as referred to in that press release.

Q. Do you recall when it was that the ammonium perchlorate experience of Pennsalt led you to conclude that

you would not consider producing that product at least for the time being in the East?

A. Not specifically. I would imagine that it was not long after we started up the enlarged unit at Portland, though.

Q. I would like to show you, sir, a press release dated February 10, 1959, which the reporter can mark as Plaintiff's Drake Exhibit 49.

(Press release dated February 10, 1959, was marked Plaintiff's Drake Exhibit 49 for identification.)

[fol. 1651] By Mr. Freed:

Q. Can you tell us with reference to that press release approximately how long after the announcement of the expansion at Portland the decision was made respecting a chlorate-perchlorate plant in the East?

Mr. De Lone: "The decision was made"? Would you explain what you mean by "the decision"?

By Mr. Freed:

Q. Can you tell us when following the date of this press release the testimony which you have previously given concerning Pennsalt's cessation of interest, temporary or otherwise, in a perchlorate-chlorate plant in the East happened?

A. No, I can't.

Q. In terms of the year 1959, do you have any idea how close after or long after this press release the decision if any was made concerning an eastern perchlorate unit?

A. Well, first I would have to ascertain when this unit went on the line and get something to tie it to. Perhaps to save time that I can comment on it this way: It was undoubtedly some time after the facility went on stream that we determined that our specifications were not suitable for some of the applications. Obviously we couldn't have determined that before we went on the line because we weren't making in that amount.

Q. I wonder if you could tell us with reference to management committee meeting No. 102 held in June, 1959, [fol. 1652] whether the minutes at that meeting enable you in any way to fix a date? These minutes have previ-

ously been identified as Plaintiff's LaLande Exhibit 3 and the minute to which I am referring is on page 3-K.

A. This I think still refers to the Portland plant and, therefore, in June, no work had been started in building the plant because we are still talking about—I raised the question here, could the plant be located in California, to which Mr. Shanaman replied that the economics would be bad since power is 60 per cent of the cost and the power costs in Sacramento are 4½ to 5 mills compared with 2 mills at Portland, so I would gather from this that the plant had not been started. In fact, I think even the—it was just then coming to us in an appropriation request form; hence the question why the relatively lower return on investment.

Q. Then would it have been some time in the latter part of 1959?

A. I would guess the latter part of '59 or early '60 that that plant went on stream. A lot of water had gone under the dam or over the dam between the time we first talked about this and the time it went on stream and, as I testified, I believe, in Washington we became quite excited at various times about the projections for demand for ammonium perchlorate, demands which even today have not [fol. 1653] materialized anywhere near to the degree that they were projected back in '58 and '59 and it is conceivable that some of that came to light not long after our plant went on stream at Portland. There was the other factor which I think I also alluded to at least that as so often happens when you talk to people who are supplied with—from one source—about creating a second source, they welcome you with open arms. You come around with the second source and they are happy to know that if anything goes wrong, they have got a second source to go to, but they don't always follow through on awarding you any business. That's one of the risks that, of course, anyone has to take in going into a business like this.

. . . . . .

[fol. 1654] By Mr. Freed:

Q. And it would have been shortly after the date on which this plant did come into production that you encountered your second thoughts about ammonium perchlorate; is that what you said?

A. That's what I am trying to recall and, as best I can, I think that's a reasonable statement.

• • • • • • •

[fol. 1655] By Mr. Freed:

Q. Mr. Drake, can you tell us on the basis of those minutes why it was that the matters covered in the last paragraph of Plaintiff's LaLande Exhibit 11 were of interest to you at that time with particular reference to Olin.

A. Well, this is about the time that we were expanding [fol. 1656] our plant up at Portland, if my dates are correct, or were talking about expanding the plant at Portland, isn't it?

Q. That is correct.

A. Yes. So that at that time, our—we had some enthusiasm for perchlorate based on estimates that had been gleaned from one source or another.

Q. And my question is, why was the chlorate-perchlorate plant referred to in these minutes being considered in connection with Olin?

A. Well, No. 1, the chlorate phase of it was being considered with Olin because of our—as has been brought out in the testimony—prior discussions with them about the desirability of a chlorate plant in the South, we having determined that we could not justify a chlorate plant in terms of our return on investment criteria. I imagine that the perchlorate came into the picture because of the awareness both on the part of Olin and ourselves of this potential demand for perchlorate.

Q. Referring back again, sir, to Plaintiff's Drake Exhibit 32 and drawing particular attention to the reference in paragraph 7 on page 2 as follows:

> "A second follow-up announcement on this proposed Calvert City plant should be issued promptly to preempt the market from other interested companies—Solvay, Columbia-Southern, Olin Mathieson."

[fol. 1657] And in light of the further statement on page 4 under subparagraph "B," as follows:

> "Industrial division immediately to plan, organize and undertake entry in the Southern and other Eastern pulp and paper markets. The objective will be the commercial sale of product beginning in January, 1960."

I wonder whether you can tell us the circumstances if any which led to a consideration in January of 1959, two months later, to proceeding with the chlorate-perchlorate venture at Calvert City which is the subject matter of this memorandum as shown by its title under "A" on page 1 as a joint venture with Olin, and I hand you in connection with my question the entire document, Plaintiff's Drake Exhibit 32, so that if in any way I have misstated——

A. No, I recall we spent quite a bit of time on this down in Washington. Can I look at this again?

Q. Oh, anything at any time.

A. I can't reconstruct from memory what happened between November 3rd and January 23rd. I think we have had in the testimony some references to discussions between Olin and ourselves, between those two dates, which shed some light on it.

The other factor which is purely conjecture on my part and should be so recorded is that it is conceivable that at [fol. 1658] the—that whereas we may have been giving some thought among some of us about the possibility of including perchlorate in a possible joint chlorate operation with Olin Mathieson, it is quite likely that we had not brought that into the picture with the group which was represented here, the entire group which was represented here at this meeting of November 3 which included, as you will note, not only the—some of the officers of the company but also some further down the line. That's purely conjecture on my part but I am—it is a possibility.

Q. I don't understand your last answer, Mr. Drake, in light of the subject matter of the November 11, 1958, document which refers to a combined chlorate-perchlorate venture at Calvert City.

A. Yes.

Mr. De Lone: The witness has two documents before him, as I understand him, both of which are involved in your question.

The Witness: Well, I think I can answer Mr. Freed.

What I have endeavored to indicate here is that this November 3, 1958, meeting dealt with a combined chlorate-perchlorate venture at Calvert City. You will note that it was—included in that meeting were members from the [fol. 1659] market research group and others who were not, I would say, in the higher echelons of the company and it is very possible that at that stage of the game we did not bring into the—this discussion any possibility of doing this other than on our own because of the people at the meeting.

Q. But apart from the conversations which took place between you and Mr. Logan or someone from Pennsalt and someone from Olin in between the November 3, 1958, meeting and the January 23, 1959, appropriations committee meeting, can you recall any other discussions or any other events that intervened between those two dates that were relevent to this matter?

A. No, no; I can't.

Mr. Freed: I would like simply for the purpose of clarifying the record to offer as Plaintiff's Drake Exhibits 50 and 51 a press release by Pennsalt numbered PS-1454 which contains a handwritten notation on the photostat, "10-5-58." That will be Exhibit 50, and the release labeled PS-1391 which appears to be the February, 1959, undated press release and that document is to be marked Plaintiff's Drake Exhibit 51, and after the reporter marks them, I would simply like to have Mr. Drake identify them for us so that the references which have been made to press releases here will have specific references in the record.

[fol. 1660] (Press release PS-1454 was marked Plaintiff's Drake Exhibit 50 for identification.)

(Press release PS-1391 was marked Plaintiff's Drake Exhibit 51 for identification.)

Mr. De Lone: I understand you have no questions to ask the witness about these. There is no dispute these are copies of Pennsalt's press releases.

* * * * * * *

[fol. 1661] The Witness: Exhibit 51 refers to the initial unit for the production of ammonium perchlorate at Portland. Exhibit 50 refers to the same initial unit and merely states that it is on stream. This has a penciled dating on it, "10-5-58."

Exhibit 49 announced approval of plans for the expansion of that initial unit.

(Discussion off the record.)

By Mr. Freed:

Q. Mr. Drake, the last sentence in the appropriation committee meeting minute of January 29, 1959, which is Plaintiff's LaLande Exhibit 11, states:

> "If Olin is not desirous of proceeding further with this joint venture, Dr. LaLande agreed to resubmit to the committee data on Pennsalt doing the project alone."

Can you recall any of the conversation at the meeting which was held on January 23, 1959, and as recorded in this document concerning that request to Dr. LaLande or Dr. LaLande's agreement with respect to it?

[fol. 1662] A. No, I can't.

Q. Mr. Drake, at page 242 of the transcript of your deposition in Washington, you were asked about the contact or the making of contact between Pennsalt and Olin at the end of 1959 or in the beginning of 1960 preliminary to the formation of Penn-Olin and I show you your deposition. I show you the transcript to refresh your recollection on that matter.

Subsequent to your deposition, Mr. Land was examined in Tacoma on August 10, 1961, and at page 33 of the transcript, he furnished his recolection of the manner in which the contact between Olin and Pennsalt just prior to the Penn-Olin negotiations took place.

I wonder if you can tell us whether you have read Mr. Land's testimony on this period of time prior to your appearance here today for the purpose of asking you thereafter whether it in any way refreshes your recollection on

the events which led up to the commencement of negotiations between Pennsalt and Olin in 1960.

• • • • • • •

[fol. 1663] A. First, let me say Hugh Land not only looks like an elephant but he has got a memory like one, by comparison, at least.

(Discussion off the record.)

A. I say that as a compliment, actually, because he is a very fine person.

I still don't recall; but this is certainly very conceivable that I would have received a call from Mr. Block. This, of [fol. 1664] course—I think I mentioned this earlier in another connection—that he was quite a figure in the Olin Mathieson group. I think probably what this did was finally get up to a point where I said, "Well, let's see if there is anything to this." Whether he actually talked with me or not, I honestly can't remember. If it was a talk, it certainly was by phone because the only time I ever met with Mr. Block was down at—was over at the meeting, I think, in January of '60, and subsequent to that, but this very well could have been the mechanism by which this thing got on the track, so to speak.

Q. But you have no specific recollection yourself of the conversation?

A. I honestly don't. I don't, no.

Q. From Mr. Land's reference here, can you in any way recall any contact between you and anyone from Olin between the date of the last event about which you have testified in 1959 which I believe was a letter from you to Mr. Logan or vice versa in April, 1959, and prior to the date of his conversation at the end of 1959? I believe in the last examination you had no recollection. You did state that you would consult your records or your diary.

A. Which I did, incidentally, and tried to——

Q. And see whether you could reconstruct anything in that nine-month period?

[fol. 1665] A. I looked for it and I honestly can't recall.

Again, I would say it is not unlikely that I saw John Logan in that period but I don't recall it.

. . . . . .

By Mr. Freed:

Q. In the questions I am about to direct to you, Mr. Drake, reference will be made frequently to Plaintiff's LaLande Exhibit 3 which is a many-paged document con-
[fol. 1666] taining extracts of management and other committee meetings of Pennsalt and I will refer to the particular meetings by the number and date of the meeting rather than the number and date of the document which I don't have before me.

. . . . . .

[fol. 1667] By Mr. Freed:

Q. In the minutes of the management committee meeting No. 88 on September 11, 1958, there is a reference to a sodium chlorate plant, the question being a request by you for firm decisions to be made on "Whether we will build a sodium chlorate plant and, if so, where." I wonder whether you can recall the circumstances which caused you to ask this question in September, 1958.

A. Let me see the whole minute, will you, for that meeting?

Q. I would like you to refer to the full minutes at any time.

A. I think in this instance, it is important to put it in the context of the meeting because this is referring to the upcoming planning meetings where various items are listed for consideration, one of which was this old chestnut of again trying to determine once and for all whether we want to get into the sodium chlorate business or not and, if so, where.

Q. Can you recall any specific event or circumstance which prompted the renewal or awakening of your interest in sodium chlorate at the time of this meeting?

[fol. 1668] A. No, this, I would surmise this only, that in the making up of our capital budget for the next year, somebody raised the question, "Well, now, what about this old

horse, sodium chlorate; should it be included or shouldn't it?" And, undoubtedly I said, "Well, let's get it on the agenda and take a look at it," and that's the most—and purely conjecture.

(Discussion off the record.)

By Mr. Freed:

Q. Then, as I understand your testimony, this only opened up the matter for consideration or reconsideration. It did not, to the best of your recollection, follow any specific transaction or communication outside the company?

A. Not to my knowledge, not to my recollection.

. . . . . .

[fol. 1669] Q. Can you recall at the time of either of these meetings, No. 88 and No. 89, any discussion about ammonium perchlorate in conjunction with the sodium chlorate referred to?

A. No, sir, in conjunction with that plant. We discussed ammonium perchlorate for the Northwest at the same meeting.

Q. But do these minutes indicate to you that at this particular time a sodium chlorate plant in the South by itself was being considered?

A. I would assume so, from these minutes.

Q. In management committee meeting minute No. 90, dated November 13, 1958, a reference is made under Item 3 to a Southern chlorate plant: In light of the testimony which you have previously given both today and in Washington about the meetings in October and November on the subject of a Southern plant, can you tell us whether this minute in any way adds to your recollection of the consideration being given to that Southern plant at this time, November, 1958?

A. The only thing I think I can—it brings to mind is—that someone must have asked whether or not perchlorate should be considered as a part of this Southern plant. Apparently not much consideration was given to it other than to—for me to ask the treasurer to determine whether perchlorate would be subject to renegotiation.

[fol. 1670] Q. And do you recall what the answer to that question was?

A. I think it was that it would be subject to renegotiation.

Q. Can you tell us what bearing the subject of renegotiation had on Pennsalt's consideration of entry into this business?

A. Oh, absolutely. If you are making and selling a product which is subject to renegotiation, the risk involved is far greater for the producer by virtue of the fact that whereas you may have gone into it only on the basis of a reasonable return on investment, reasonable in terms of our own criteria, when you get to the point of renegotiation, you may find out that the profits just aren't there, so it is a very significant point.]

. . . . . .

[fol. 1671] Q. Can you tell us, sir, whether the renegotiation problem with ammonium perchlorate has ever caused you to take or not take action that otherwise would have been performed at Pennsalt?

A. No, I think it has merely raised a danger signal to us.

. . . . . .

[fol. 1672] Q. Directing your attention next, sir, to the minutes of management committee meeting No. 99 held on April 9, 1959, VI talks of a Southern chlorate-perchlorate plant and states as follows:

> "Mr. Drake advised that the joint venture potential location of Brunswick was now out of consideration but that MacIntosh, Alabama, was a possibility on which Mathieson will report further to him shortly."

Can you recall the information which you communicated to this management committee meeting in April 1959?

[fol. 1673] A. I think I perhaps covered that partially at least in earlier testimony but my recollection is that we soon found out that the power costs at Brunswick were exhorbitant in terms of the needs for a plant. I recall that Brunswick, Georgia, was a plant location of Mathieson. They also had a plant at MacIntosh. Undoubtedly the re-

port that Brunswick was not a suitable site because of the power costs was followed by a comment, "Well, we will take a look at MacIntosh and see if that looks any different." Now, I would imagine that that's virtually what I reported at that meeting.

Q. Can you recall the nature of the communications between you and Olin prior to this meeting that led to your report?

Mr. De Lone: Now, Mr. Freed, didn't we have a number of documents identified at the last deposition on this very subject? It was at one of the depositions, I think, of Mr. Drake, correspondence?

Mr. Freed: We did, Mr. De Lone, have an exchange of correspondence between Mr. Logan and Mr. Drake.

Mr. De Lone: Yes.

Mr. Freed: My question is designed to determine whether the minutes of this meeting in April, 1959, recall to Mr. Drake any other communications apart from those two letters.

The Witness: Have you got the letters right there?

[fol. 1674] By Mr. Freed:

Q. I believe I have.

A. Well, to save you time, I don't recall any other communications. There could have been a phone conversation or the like but the reason I say that I think there might have been a phone conversation, because I remember trying to needle John Logan from time to time to let us know what he had found out about Brunswick.

. . . . . .

[fol. 1675] By Mr. Freed:

Q. I don't believe that either of the two documents which you are now holding, sir, make any reference either to a joint venture as such or to a perchlorate plant and I believe that earlier this morning you testified that you had no specific recollection of having talked to Mr. Logan prior to that appropriations committee meeting in January on the subject of perchlorates and I wonder whether all of the documents and letters and discussions and in particular

the minutes of meeting No. 99 and your recollection of needling of Mr. Logan on power costs enable you to add anything to the discussions which you can recall having taken place between you and Mr. Logan in the early part of 1959.

A. I am afraid I can't.

Q. Can you recall following this meeting on April 9, 1959, in the minutes of management meeting 99 what the next contact between you and Mr. Logan on this subject matter was?

A. I don't recall what the next contact was.

Q. Do you recall whether you did receive a report on MacIntosh?

Mr. De Lone: There is a letter on that which I believe has already been marked by the Government in previous depositions.

Mr. Freed: To which letter are you referring, sir?

[fol. 1676] Mr. De Lone: A letter dated April 7, 1959.

Mr. Freed: I believe you will see that that letter is dated two days before this meeting and that letter refers to exploration at MacIntosh and my question is whether Mathieson reported to Mr. Drake on the results of its examination of the MacIntosh location.

Mr. De Lone: I beg your pardon.

A. They must have. Darned if I know when or how unless, like several other things, it just died a natural death.

By Mr. Freed:

Q. I would like next to direct your attention, Mr. Drake, to the minutes of the management committee meeting No. 100 which took place on May 8, 1959, but is not contained in the extract in the LaLande Exhibit before you. The particular item to which I direct your attention does not refer to any specific acquisitions or joint ventures and does not mention any particular chemicals but I wonder whether you can recall whether any of the nine projects referred to included the consideration then being given to a joint venture with Olin and perhaps to clarify the record at this point I would read into the record that this item in the minutes of meeting No. 100 reads:

"VI. Acquisitions and joint ventures.

[fol. 1677] "Item 1. Mr. Drake brought up to date our progress in this area (i.e., nine projects and/or companies)."

A. I don't know what is specifically——

Mr. De Lone: I take it the Government doesn't expect to argue any proclivity toward joint ventures from this one reference that has been read into the record.

Mr. Freed: It does not.

A. I don't recall whether or not it was raised as a matter of Olin Mathieson. In other words, I don't know whether that name was brought up here.

By Mr. Freed:

Q. In light, sir, of the reference to the joint venture in the minutes of the previous meeting No. 99, the extract of which was discussed just a few minutes ago, can you recall whether consideration of a joint venture with Olin was dropped between the dates of those two meetings, namely, between April 9 and May 8, 1959?

A. Oh, I wouldn't think so.

Q. Can you recall any change in the status of your consideration of it between those two dates?

A. No.

(Discussion off the record.)

[fol. 1678] By Mr. Freed:

Q. Dr. Drake, I would like to refer you to the extract of management committee meeting No. 103 dated June 25, 1959, on the subject of ammonium perchlorate and also of chlorate-perchlorate completion and ask whether you can explain with reference to these items anything about the status of consideration then being given by Pennsalt towards an ammonium perchlorate or sodium chlorate plant in the East?

A. I am not at all certain what it refers to, whether it refers to East or West. You are speaking now of VI, Item "G"?

Q. VII.

A. VII? I beg your pardon.

Q. Could you address your attention to the full minutes of that meeting to determine from the subheadings whether any enlightenment is given to this extract?

A. Oh, I get it. This was in June of 1959 and weren't we at that time then building the plant at Portland, that is, the expansion? And since this was referring to 1960, the 1960 program, it was assumed that it would be completed during 1959 and, therefore, capital would not be required in 1960 for it.

Mr. De Lone: The "It" and "This" is all with reference to the West Coast expansion of the chlorate-perchlorate?

The Witness: Yes.

[fol. 1679] By Mr. Freed:

Q. With reference to the ammonium perchlorate statement that you made as reflected in these minutes, can you tell us what the outlook in June, 1959, was on the subject of ammonium perchlorate?

A. You are referring to the article in "Missiles and Rockets"?

Q. I am referring to your reference to the article in "Missiles and Rockets."

A. To the article in "Missiles and Rockets"? Well, it sounded awfully good but I remind you of what I said several times before that what we heard from the various agencies and what we read in magazines like "Missiles and Rockets," whereas, at first, it got us quite excited, we got much more mature in our appraisal of what we heard and read and got less excited as we went along because, obviously, it didn't materialize.

Q. At least, at the time of this particular meeting, the reports were favorable enough to enable you to continue with the Western expansion; is that correct?

A. Well, I think since we were then building the Western expansion, why, we rationalized that this was comforting.

. . . . . .

[fol. 1680] Q. With reference to the contribution of Olin to the joint venture, the statement is made that Olin has "A patented chlorine dioxide process for pulp bleaching which uses sodium chlorate." Can you recall at any time discussing the importance or significance of the patented aspect of Olin's process?

A. If I understand your question correctly—possibly I can restate it in order that I may understand it correctly—are you refering to the sigificance of the patent, of the patented—patentability of their process in terms of its being a selling tool; is that what you are driving at?

Q. I am referring, sir, to the significance if any to the fact that Olin's process was patented.

A. Well, I am sure that must have at some stage of the game been considered because we felt it was sufficiently valuable to get a license to use it up in the Northwest primarily because that's where we were selling the material, chlorate.

Q. You are referring to that license agreement of 1953; is [fol. 1681] that correct?

A. Yes.

Q. But do you know, sir, whether the patent feature of the chlorine dioxide process gives any advantage to Olin or to Penn-Olin today?

A. Well, I think it has been brought out both by myself and I am sure it must have been brought out by others that the value of that so-called patented process today is —has been minimized over the years so that today the fact that they have a patented process, may be it is a plus factor, but it certainly is not in our estimation as significant as it was, say, in '52 or '3, whenever it was we originally got a license on it.

Q. Do you know whether Penn-Olin has asserted or intends to assert any rights by virtue of the patented feature which you discussed here?

Mr. De Lone: Well, now, I do think that has gone far beyond anything that has to do with these minutes.

Mr. Freed: I don't believe so at all, Mr. De Lone. This is one of the few references if any to the patented feature of the process. It is mentioned as an answer to be given in response to questions directed to the joint venture and

it suggests that some importance was attributed at least at the time of this meeting to the patented feature of the process and the inquiry is designed to determine what if [fol. 1682] any value or importance the patented aspect has.

A. I think you are reading into that too much significance to the word "patented." I think it is a description of what it was rather than by virtue of the fact they have a patented process. This is a wonderful thing for this joint venture. I think we had already recognized at that time that the fact that it was patented was not as important as it had been previously.

By Mr. Freed:

Q. Is it your understanding, sir, that the process is freely available to both consumers and to producers who wish to sell sodium chlorate to those consumers?

A. I can't answer that unequivocally but I do know that it has been used widely enough so that I have questioned in my own mind why we continue to pay Olin a royalty on the chlorate that we sell under this agreement, so I think that answers your question that we certainly question the value of that process as a patented process.

Q. And, as far as you know, does the patented feature of the process inhibit anyone other than Olin or Pennsalt, its licensee, from selling sodium chlorate to someone who uses or wishes to use the chlorine dioxide process?

A. I don't believe anybody that buys sodium chlorate today is at all concerned about whether they have a license or they don't under this patent.

. . . . . .

[fol. 1683] Q. In the minutes of full management council meeting No. 6, and that minute is dated March 31, 1960, the statement is contained:

"Penn-Olin: The sales question was briefly discussed."

Can you recall what the point of reference in that discussion was?

A. I would have to look and see who was at the meeting. My guess would be, however—and I think it would probably be a darned good guess—that the fellows in the Ag Chem, for example, said, "Now, are we going to have chlorate to sell from this facility?"

Q. I believe that Plaintiff's LaLande Exhibit 5 introduced yesterday contains the list of people who were present and absent at various meetings covered by these extracts and the meeting to which we are now referring was attended by Messrs. Clark, Clem, Collins, Drake, LaLande, Logue, McWhirter and Willits and also Mr. Tuttle.

[fol. 1684] A. I think my comment would still hold even though actually neither Land nor Watson nor Shanaman were there. I am sure that the question had been raised as to who was going to sell the output of this joint venture, a question which, incidentally, as far as I know hasn't yet been resolved completely.

Q. Can you recall whether other than the testimony you have already given there were any uses of sodium chlorate other than for agricultural chemical purposes that Pennsalt personnel wanted to sell the output of Penn-Olin for?

A. Oh, undoubtedly our Eastern sales organization made some noise about being able to sell some of the output of this for other than agricultural chemicals use. That would particularly pertain to a modification and, remember, at this stage of the game, we were not confined solely to chlorate in our thinking. Our modification of sodium chlorate would be potassium chlorate which is used in the match industry, so that could be another outlet which could have been discussed at this time.

This is always conjecture on my part but I am trying to give you what I can imagine took place as resulting from—as boiled down—to this terse statement under, "The sales question was briefly discussed."

. . . . . .

[fol. 1685] Q. Directing your attention to the minutes of full management council meeting No. 7 in which Paragraph 2 of the abstract states:

"The council was advised that Mr. More believes that 1500 to 2000 tons of chlorate production on the West

Coast will be uncommitted for 1961 sales and, therefore, will be available to Olin."

Can you recall any reasons being given for the availability of sodium chlorate in April, 1960, for sale in the East?

• • • • • • •

[fol. 1686] (Complete extract of page 2 of full management council meeting No. 18, dated June 13 to 16, 1961, was marked Plaintiff's Drake Exhibit 52 for identification.)

• • • • • • •

[fol. 1687] By Mr. De Lone:

Q. Mr. Drake, when you testified, prior to your testimony in Washington a couple days in August, I think August 2nd and 3rd—

Mr. Freed: 1st and 2nd.

By Mr. De Lone:

Q. —did you in preparation for those, for that testimony, review with me a large number of documents concerning the expected subject matter of your testimony, a substantial number of documents, material?

A. Well, you gave me certainly an outline of what questions would be——

Q. And beyond that, did we go over a number of documents in order to try to refresh your recollection about [fol. 1688] these matters?

A. Well, it is a matter of wording, but I would say "Yes."

Q. Now, did you repeat the same process and go over the same material again before your depositions here today or was your preparation for these depositions limited to a review of the minutes of the committee meetings that have been referred to and to the press releases concerning ammonium perchlorate?

A. Limited.

Mr. De Lone: Thank you. That is all.

[fol. 1689] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 393

Tacoma, Washington.

EXCERPTS FROM DEPOSITION OF F. C. SHANAMAN TAKEN ON AUGUST 8, 1961

* * * * * * *

[fol. 1690] FRED C. SHANAMAN called as a witness by and on behalf of the Plaintiff, being first duly sworn, was examined, and testified as follows:

Direct examination.

By Mr. Freed:

Q. Give the reporter your name and address.

A. Fred C. Shanaman, 26 Country Club Drive, Tacoma.

Q. And are you presently employed by Pennsalt Chemicals Corporation?

A. In the capacity of consultant.

Q. What was your last previous job with Pennsalt?

A. I was vice-president of the corporation.

[fol. 1691] Q. And in the capacity of vice-president, what were your responsibilities?

A. Specifically the management of the Tacoma and the Portland plants, and also the management of the agricultural chemicals activities of the company on a national plane.

Q. And how long did your vice-presidency with those responsibilities cover?

A. From about—I became the vice president of the Western corporation, which was a subsidiary of the parent company in Philadelphia, approximately in 1940, and subsequently the president of the subsidiary; in the forties I also was made vice-president of the parent corporation. I am sorry I can't give you the exact date.

Q. Prior to the time that you came with Pennsalt, was it engaged in the sodium chlorate business?

A. Was I—was Pennsalt—no.

Q. Could you give us briefly a sketch of how and when Pennsalt got into the sodium chlorate business?

A. Yes, in the thirties——

Mr. DeLone: Off the record.

(Discussion off the record.)

The Witness: What was your question?

Mr. DeLone: I am sorry.

[fol. 1692] (Whereupon, the last question was read by the reporter.)

The Witness: During the thirties, a Pennsalt subsidiary, Tacoma Electro-Chemical Company, operated a plant in Tacoma which did not have enough business to keep it as fully occupied as we would like, and consequently, I had a considerable amount of free time, which I spent looking for other opportunities for the corporation, other than merely the manufacture and sale of chlorine and caustic soda.

About the mid-thirties, the parent company began selling to the agricultural trade a product which we had from Natrona, Pennsylvania, where we operated a Cryolite process. The sale of Cryolite in the micronized form put me in touch with the agricultural activities throughout the Eleven Western States—that activity brought to light the fact that sodium chlorate was used in considerable quantity for herbicidal purposes and by the weed districts of the area, and also industrially by the railroads, principally for the eradication of weeds on the rights-of-way, an investigation, followed my market appraisal, and Mr. Gibbs evaluated our technical opportunities with respect to the type of facility [fol. 1693] which we might be able to put in. This resulted in the decision that if we could sell the quantity of sodium chlorate which I had indicated was seemingly available to us, then the company felt that it could produce sodium chlorates, particularly at Portland, Oregon, where the Bonneville Dam was being contemplated. This dam would provide power at rates which were being mentioned by those who felt they would have something to do with the operation of that facility in the order of a mill and a half up to approximately two mills per kilowatt hour. The cost of power is a very, very important factor in the manufacture of sodium chlorate.

So there were the combinations of the market possibilities, which I had uncovered, plus the fact that cheap power might be available, which seemed to provide a combination which was required for us to consider the installation of a sodium chlorate and potassium chlorate operation for the Pacific Northwest.

Does that answer your question?

Q. An excellent answer. Thank you, sir.

Do I correctly understand then, that the sodium chlorate and potassium chlorate operations were installed simultaneously?

[fol. 1694] A. Correct.

Q. Did Pennsalt develop its own sodium chlorate technological process at that time?

A. The market investigation indicated that as the European war clouds became more ominous, we would have to proceed perhaps more rapidly than originally contemplated, and since most of the technology related to the manufacture of sodium and potassium chlorate rested in the hands of the Europeans, it took plenty of time to develop our own process. Ultimately we did give consideration to making use of the chlorate cell, which was in use in France and in Germany.

However, the war between those two countries, at least, the looking at one another across the Maginot Line, indicated to us that we would possibly have to develop our own technology, and we did just that, and we put in our own cell, and began—we began constructing a plant in 1940.

Q. At that time were there any other domestic producers of sodium chlorate in the United States?

A. The Oldbury Chemical Company at Niagara Falls.

Q. You mentioned the cost of power as a mill and a half or two mills at that time. What is the cost of power today?

[fol. 1695] A. Two mills.

Q. So that then the power costs out here are approximately half of what they are in the TVA area, is that right?

A. Yes.

Q. At the time your sodium chlorate operations began, how far did the territory of your chlorine and caustic soda sales extend?

A. Chlorine and caustic soda?

Q. Yes.

Mr. DeLone: Do you mean in the Western operation?

Mr. Freed: Yes, sir.

A. Chlorine and caustic soda in bulk, the chlorine,—I will start with that.

Chlorine in bulk in tank cars could economically move to the pulp mills in the Pacific Northwest exclusive of the then existing plant bleaching pulp with our chlorine at Port Alice, British Columbia.

We supplied that plant with one-ton containers of chlorine, that is, chlorine packed in containers holding one ton each.

The other mills which existed from south to north, Salem, Oregon, and up to Everett, Washington, and over on the Peninsula as far north as Port Angeles, Washington, and east as far as Spokane, that would be the territory where [fol. 1696] chlorine would be moved.

Excuse me, Francis, did you want something?

Mr. DeLone: You said on the Peninsula. What is the Peninsula?

The Witness: The Olympic Peninsula.

Mr. DeLone: You have to excuse us. We are not used to that terminology.

A. (Continuing) Caustic soda, by reason of the fact that it is manufactured and sold in several grades, provides a different set of marketing problems. The bulk liquid grade in tank cars was sold in the same market area which I have identified for liquid chlorine in bulk.

In packages, the solid and the flake grades were marketed in the Eleven Western States and into export wherever we could find a market for any quantity from a carload down to LCL (or less than carload lots).

For chlorine other than in bulk and packed in cylinders and one-ton containers and with the exception of the accounts which used varying quantities of chlorine in the pulp industry, most of the demand for this type of chlorine was by water and sewage plants, small miscellaneous industrial demands, and the trade area where we could economically market that form of chlorine or that grade of chlorine. That type of package was used primarily for sales in the States [fol. 1697] of Washington, Oregon, Montana, Idaho, and the southern portion of British Columbia in Canada.

Q. With respect to the sales of agricultural chemicals in the early nineteen-forties, where did the Pennsalt Washington Division sell those products?

A. In the—on a national plane.

Q. And in terms of the salesmen involved, did salesmen from Tacoma and Portland travel throughout the United States?

A. No, we had offices elsewhere. We had offices in—we had a man or two working under my direction in the Philadelphia office. We had salesmen who were working out of their own homes, and we had—in due course we had a small manufacturing operation in Bryan, Texas, which means, therefore, that sales office location has been a changing picture, depending upon the demand for the type of product that we have had from one time to another.

It has changed considerably in the years since we first got into the agricultural chemical picture, and as the demand in the market place changed, and we no longer had enough business to justify maintaining an office in one location, it would be closed. We might open another in some other location, because some years you may be very strong with re- [fol. 1698] spect to the sale of your chemicals in the cotton areas, but if they changed to a type of organic in which you were not basic, there would no longer be any necessity for you to have the office in the particular area, so it would be closed.

Q. Does the Agricultural Chemicals Division today still sell its products nation wide for Pennsalt?

A. Yes, and as a separate group, a separate and distinct group from industrial chemicals, and the headquarters is still in Tacoma.

Q. Apart from chlorine, caustic soda, and the agricultural chemicals that we have just been discussing, at any time during your tenure with Pennsalt, have any other products been sold from the Western subsidiary or the Western Division of the Company east of the Rocky Mountains?

A. Other than agricultural chemicals, no, except whenever our plant had an incremental increase in the facilities, which were existent for the production of chlorine, caustic soda, ammonia, chlorates, to—we weighed the economics involved with respect to having the excess capacity stand idle or weighed against the freight equalization we might

have in order to reach a more distant market with the expectation that when and as the local or the immediate market [fol. 1699] grew to the point where it would require the services which we could render from a local plant, we would then discontinue shipping into other markets, because just common economic sense dictated that.

Q. Could you tell us how large the sales organization of the Agricultural Chemicals Division was?

A. It has varied. I think the maximum that I recall we ever had was in the early nineteen-thirties, and that was somewhere between thirty and thirty-five. I think that has varied from, on an average, I will say, it has averaged out somewhere in the neighborhood of twenty-five to twenty-six men.

Q. And about how many of that sales force today concentrates its activities east of the Rockies?

A. I can only tell you approximately what that division was prior to the early part of 1960 when I retired from the company.

Normally we considered that we would have, approximately twenty-five per cent of the agricultural sales force—on the West Coast, about twenty-five to thirty per cent would be a fair division for the Eleven Western States as compared with the rest of the United States.

That was dictated pretty much by the type of chemicals that we produced and the type of agriculture we were [fol. 1700] attempting to serve.

Q. Since your retirement in 1960, have you had any operating responsibilities?

A. None whatsoever.

Q. Have you consulted with the company on any?

A. When they asked me for advice, or requested my assistance, yes.

Q. Have you given any advice or assistance in the sodium chlorate area since 1960?

A. No. They have asked none, and I have volunteered none.

Q. In the sales by the Agricultural Chemicals Division east of the Eleven Western States, is it a—is it an accurate demarcation to define the Eastern sales territory as east of the Rocky Mountains for the purposes of——

A. (Interposing) Yes, east of the Eleven Western States

is, I think, a rather accurate statement concerning the division of the territory.

Q. And the Rockies would be the line of demarcation?

A. Right.

Mr. DeLone: Could we find out for clarity what Mr. Shanaman means by the Eleven Western States?

The Witness: Washington, Oregon, Montana, Idaho, Wyoming, Nevada, Utah, Colorado, New Mexico, Arizona, [fol. 1701] California, and I think that covers it.

I think I mentioned them all. I mentioned Washington, Idaho, Montana, Wyoming, California, Nevada, Utah, Colorado, Mexico, Arizona.

By Mr. Freed:

Q. Do you mean New Mexico?

A. Yes, New Mexico.

Q. Does the Agricultural Chemicals Division, at least up to the time when you retired, sell any non-agricultural product in the eastern part of the United States?

A. No, not to my knowledge. If they ever did, I wouldn't know anything about it. Certainly they never disclosed it to me, because we were operating the agricultural activities as a separate and distinct thing from the industrial group, and it would just simply be a confusing state of affairs to have them handle both.

I notice some companies do that, but we never did.

Q. As of the time of your retirement, approximately what was the dollar volume of agricultural chemical sales that involved sodium chlorate that consisted of products made out of sodium chlorate?

A. Products made from sodium chlorate?

Q. Yes.

[fol. 1702] A. We only had one, and that was Defolate, and that was approximately $100,000.

Q. And does the product Defolate cover both the herbicidal use and the railroad killing use that you have mentioned?

A. No, the Defolate is a defoliation chemical used in the defoliation of cotton principally in Arizona and New Mexico and a portion of California.

Q. Did the weed-killing sales—did the weed-killing func-

tions of the sales, which you made to the railroad—strike that. Strike the whole question.

I wonder if you could tell us what product was sold to the railroads for weed-killing purposes?

A. The weed killing by railroads, as far as Pennsalt's interests were concerned, involved sodium chlorate exclusively. That is the only product that we produced which had any significance as far as railroad weed treatment is concerned.

Q. Approximately what was the dollar volume of those sales?

A. It varied from approximately $320,000 to $500,000 a year. That is approximately, as close as I can recall.

Q. Is it your testimony that Defolate sales were principally in the Western States?

[fol. 1703] A. Correct.

Q. And how about the railroad weed-killing sales?

A. Most of it was in the Eleven Western States.

Q. Another application of sodium chlorate that you mentioned was potassium chlorate?

A. Yes.

Q. What was the approximate dollar volume of those sales at the time of your retirement?

A. From $75,000 to $125,000 a year.

Q. And geographically where were those sales made?

A. Mostly—on a national plane wherever the match industry existed; we made an effort to obtain business from them from the existing plants. I think the farthest east we have ever gone, and it took a lot of freight equalization to do it, but I believe we did sell sodium chlorate as far east as Ohio.

Mr. DeLone: Sodium or potassium?

The Witness: Correct that; that is potassium. They don't use sodium in the match industry.

By Mr. Freed:

Q. At the time of your retirement, were there any other applications of sodium chlorate or any of its derivatives which resulted in sales of any significance east of the Rockies, excluding the pulp and paper industry for the moment?

A. To my knowledge, no.

[fol. 1704] Q. Mr. Shanaman, several months ago the Government asked the Pennsalt, and Pennsalt furnished to us a list of all the sodium chlorates customers to whom sodium chlorate was shipped on and after the first of January, 1957.

We have up to this point attempted not to place the names of any of these customers in the record, other than those pulp and paper company customers who are relatively few, and whose names have previously appeared.

However, I would like at this time to show you the lists which were furnished to us.

These lists are two-fold: the first is called Exhibit 26-1, and it has been previously marked as Plaintiff's Johns Exhibit 10, and it contains a list of Pennsalt customers.

There is also an Exhibit 26-2, which has not previously been offered, and which the reporter could mark as Plaintiff's F. C. Shanaman Exhibit 1, which gives the name and address of each distributor, and the customer of those distributors to whom Pennsalt shipped sodium chlorate on and after January 1, 1957.

I wonder, sir, if, going through these documents one at a time, you could simply state for us as to each page of, first, [fol. 1705] Exhibit 26-1, the use to which the customers on these pages place sodium chlorate.

Mr. DeLone: Off the record.

(Discussion off the record.)

Mr. Freed: On the record.

By agreement of counsel it has been determined that during a recess today Mr. Shanaman will attempt to mark Exhibits 21-1 and——

Mr. DeLone: 26-1.

Mr. Freed: 26-1, and 26-2, in the terms of the use to which customers put sodium chlorate, and any questioning concerning uses or customers will be deferred until Mr. Shanaman has had that opportunity later today.

By Mr. Freed:

Q. Mr. Shanaman, you have previously testified to the low cost of power available at Portland, Oregon, and to the fact that the power costs in Portland are considerably less, perhaps by half, those those in the TVA area.

I wonder, in the light of these cost differences, these cost differences being an essential ingredient of the sodium chlorate production process, whether you could explain for us the historical price difference which has existed between [fol. 1706] sodium chlorate prices in the western part of the United States and those east of the Rockies.

A. No, it had no relationship to the cost of power, obviously, because cost of power from the outset at Portland, Oregon was less than the cost of power in the producing area of Niagara Falls, which was the only—which was the location of the only other producer of sodium chlorate in the United States.

I was responsible for setting up the sales pattern, and I merely took the existing schedules, which I found for the sodium chlorate, which originated in Niagara Falls, and which seemed to indicate that the one producer had a base price at Niagara Falls, and the consumer paid the full amount of freight to the destination.

I visualized, as a result of my market survey, that the main opportunities existing for a chlorate plant in the west would be in the Eleven Western States, and consequently I took the pattern of delivered prices from Niagara Falls, and determined that if I sold in the area of the eastern borders of those Eleven Western States,—on the most easterly of the eleven, that I would net back a price at Portland, Oregon, which I used as a pattern for making my estimates with [fol. 1707] respect to the economics of the plant.

In other words, I merely took the existing price pattern, I took our freight estimate from Portland, Oregon, to the outlying use destinations along the eastern perimeter, and worked back the net to our plant, and that is the basis on which we sold the sodium chlorate.

Q. Was freight included in the price that you set for Pennsalt?

A. No. What we did was to set a base price at our Portland, Oregon, plant, and it was always higher than the east

for the reason explained, plus the fact that we were never subjected to the dumping of sodium chlorate into the western area at the seaports in the west to the extent that existed on the east coast of the United States, because the European plants were tied fast to very cheap power not generated all year round.

Consequently, sodium chlorate, for example, in the hands of the French, was seasonal. Sometimes they produced during a season of excellent water conditions for production of hydroelectric power a considerable amount of sodium chlorate, and that had an influence on the eastern market, I am certain, and perhaps had something to do with the [fol. 1708] pricing of sodium chlorate by the Oldbury Chemical Company.

But I merely took what I found in the market place and made use of that to determine what our price should be, or at least, what we could receive for our sodium chlorate at Portland. It had no bearing on what we could buy power for.

Q. And when was the first time that sodium chlorate produced by a competitor became a factor in Pennsalt's western sales territory for this product?

A. When?

Mr. DeLone: Would you repeat that question?

(The last question was read back by the reporter.)

Mr. DeLone: Do you mean after Pennsalt had constructed its facilities?

Mr. Freed: Yes, sir.

A. I believe—I believe that the first time that we ran into any sodium chlorate where an equalization was made against our plant price at Portland, was following the Korean War. In other words, during the early fifties.

I believe it was the first evidence that we had that some chlorate was moving into the area and it came when they began the use of sodium chlorate for the—in the production of Uranium.

[fol. 1709] By Mr. Freed:

Q. And who were the competitors or suppliers of sodium chlorate when that phenomenon occurred which you have just described?

A. Phenomenon?

Q. When that competition started?

A. Oldbury Chemical Company.

Q. At that time was Oldbury still confined to its one plant at Niagara Falls?

A. I believe—I believe yes. I believe that the first effort to participate in the market out here came when announcements were made in the trade papers that processes in the production of Uranium were requiring sodium chlorate, and I believe that some of the distributors of chemicals in the Colorado area made arrangements to bring this sodium chlorate from Oldbury Chemical Company. Whether or not that preceded Oldbury's decision to build in the south, or after, I just don't recall.

Q. In the area of competition you have just described, if you can recall, did Oldbury use—did they use the eastern price or the western price?

A. I don't recall. I don't believe that there was any—I don't think their efforts were too strong, and if their prices were somewhat lower than ours, I think we disregarded it. I think that there was no real serious effort because their [fol. 1710] sales force actually was nil. Consequently when we ran across Oldbury Chemical Company in the industrial field, we paid very little attention to them, and if they had a different price than ours, we would rather lose the business than bother with them, because we knew that sooner or later the salesmen would probably forget to call around again.

Q. Oldbury during this period was not part of Hooker Chemical, is that correct?

A. No.

Q. When was it that a third productive facility, apart from the one at Niagara Falls and the one in Tacoma—the one at Portland, came into being in the entire domestic sodium chlorate industry?

A. Whatever the date was when the plant in Alabama was

opened by Oldbury, and which was subsequently taken over by Hooker.

Q. Are you referring to the plant at Columbia, Mississippi?

A. Yes, excuse me. That Alabama plant was Columbia, Mississippi, and that is the location of the Oldbury Chemical plant, and subsequently owned by Hooker. I mentioned Alabama—it is Mississippi.

Mr. DeLone: Would you read back the answer before that? There was some other reference there that I did not [fol. 1711] catch.

(Whereupon the last answer preceding was read by the reporter.)

By Mr. Freed:

Q. Was the construction of Oldbury's plant in Mississippi the first appearance of a plant designed to serve the pulp and paper industry's requirements for sodium chlorate, or had that occurred prior to Oldbury's Mississippi plant?

Mr. DeLone: The pulp and paper industry—would you define what you mean by that question?

By Mr. Freed:

Q. A demand by the pulp and paper industry in the United States.

Mr. DeLone: In the United States?

A. Well, I wish you would just repeat that, would you, please? I think I know what you mean, but I want to be sure.

(The last question asked was read back by the reporter.)

A. Mr. Freed, I don't feel that I should attempt to guess what motivated Oldbury Chemical Company and its owners, the Albright and Wilson Company in England to make a decision with regard to operating a second plant. I can answer your question which, I believe, that you have placed before me about whether the pulp industry demand for sodium chlorate preceded the building of the plant, or did [fol. 1712] it follow, and the answer would be that it defi-

nitely preceded the construction of the southern plant, and actually preceded it by a number of years, because the general investigation by the pulp and paper industry, as well as in the chemical industry, more or less on a world-wide basis, dates back to probably before the first World War, in an effort to bleach pulp with chemicals which would not deteriorate the fiber.

Sodium chlorate has long been investigated as a potentially good chemical for that purpose, because it has a certain amount of oxygen associated with it, which gave indication of having desirable properties if it could be converted in such manner as to make it economically suited to the bleaching of the various grades of pulp, and the breakthrough occurred in the Scandinavian countries and Germany, and with the Olin Mathieson Corporation in the United States preceding World War II, and following the war, apparently pulp mills, as well as some of the chemical companies, have continued their research, and by the end of the war it was evident that a considerable amount of sodium chlorate might be used for the generation of chlorine dioxide, and that actually has occurred.

[fol. 1713] I think as a personal opinion that the decision on the part of the Oldbury Chemical Company to move south was motivated by other considerations than the sale of chlorate to the pulp and paper industry, because sodium chlorate per se at that time could not be expected to be sold directly to the pulp and paper industry, because one had to have the process well worked out to make use of it for purposes of bleaching pulp, and Oldbury Chemical Company did not have such process.

Q. When did such a process first come into commercial acceptance?

A. I will have to venture a guess that it probably occurred during the very late forties or early fifties, commercially.

There had been some evidence of some breakthrough prior to that, and there had been efforts in Europe to make use of then existing processes.

Now, the Germans had one prior to the war, and I think the Waldorf Paper Company was making use of it. It was not what we consider by our standards a good one. It had certain economic objections as well as some hazards, as I

recall, and it was not until—it was not until the, I will say the very late forties, '48, '49, or the very early fifties, that [fol. 1714] the break-through came on a commercial scale with the generation of chlorine dioxide from sodium chlorate.

Q. When the break-through in chlorine dioxide occurred in the late forties, or in the early fifties, was it the Mathieson process that made that break-through in the United States?

A. In the United States, yes. Mathieson had done the lion's share of all investigations, to my knowledge, in the chemical industry related to the use of sodium chlorate for the generation of chlorine dioxide.

Q. Prior to this break-through, had Pennsalt's sales of sodium chlorate out of its Portland plant been of any significant size to the pulp and paper industry?

A. No.

Q. And beginning with the break-through, did that also constitute a break-through for sodium chlorate by Pennsalt?

A. No.

Q. When did Pennsalt first begin to feel the impact of the chlorine dioxide break-through?

A. We visualized that there was going to be a considerable amount of sodium chlorate required for the bleaching of pulp via the chlorine dioxide route. Consequently, we had followed the development of the bleaching art in Europe [fol. 1715] as well as in the United States.

We were very well aware of what was going on inside some of the more modern pulp mills. We, therefore, felt that we must keep abreast of the developments, so that we would be prepared to sell sodium chlorate when and as the chlorine dioxide process use became of commercial advantage to our pulp and paper industry, to which we had been captive at our plants in the Northwest with respect to chlorine and caustic soda.

As a result of that captivity we knew many who were at the technical level as well as the administrative level. The use of sodium chlorate developed a little differently than we had imagined, and we had hoped. Those who had developed a process in Europe saw fit to try to sell a process on a royalty basis, and Mathieson did likewise.

Not many of the pulp mills, to my knowledge, are very susceptible to a royalty payment, and as an industry they seem to fight shy of that sort of thing. Consequently, the Europeans, as well as Mathieson, found considerable difficulty in getting their processes accepted by the industry, and, to the contrary, the industry kept looking in the other direction for chemicals that would do the same thing which chlorine dioxide was supposed to be able to do; namely, to [fol. 1716] permit the mill to increase the brightness of the pulp without decreasing the strength of the fiber.

During that particular period a portion of the pulp industry used a certain amount of sodium peroxide; a certain amount of sodium chlorate—chlorine dioxide; and I believe Mathieson was selling their product, chlorite—they sold chlorite in small quantities and indicated that this chemical would do the same thing that chlorine dioxide would do—but it was more costly because of manufacturing problems—the transportation—and the packages.

After some few years of negotiation without too much success on the part of those who came to have acceptable processes, the Solvay Company came forward with a new method of producing chlorine dioxide, making use of methyl alcohol.

Instead of offering that process to the pulp and paper industry on a royalty basis, Solvay saw fit to offer it under a long-term contract, and by that I mean three to five years, and taking in return the opportunity to sell certain chemicals of their manufacture, and which subsequently included sodium chlorate, which they arranged to purchase from the American Potash and Chemical Corporation.

[fol. 1717] Their efforts in this direction met with some success, and it posed quite a problem for us at our Portland plant, because the Solvay Company was offering a method for generating chlorine dioxide tied fast to an obligation for the pulp mill to purchase the sodium chlorate requirements required by the process from Solvay exclusively.

I might say that because of friendships, knowledge, long experience in the pulp industry, we were successful in obtaining a small quantity of the sodium chlorate required by the two major mills in the Northwest, which had installed the Solvay process: namely, Puget Sound Pulp and Timber Company and the Potlatch Forest Products Company.

It became very evident to me that for us to sell sodium chlorate in our area, where we had many pulp mill friends, that we now had to involve ourselves with a process, and we set about to develop one ourselves, or buy one.

We sought such opportunities in Europe, and we also developed a mobile chlorine dioxide unit of our own, but it was a small and inadequate bit of technical competition for Solvay or Mathieson, or the Europeans, because of our lateness in coming in, and the crash program that we had to—had in effect tried to obtain a competing process.

[fol. 1718] Does that answer your question?

Q. Yes, sir, very eloquently, I should say.

When, to your knowledge, did Solvay first begin to use this contract which requires the chlorine dioxide license to purchase it?

A. I think I first heard about it during the early fifties. I think the first time I heard about it was in their efforts to put one in the Regal Paper Company, back east.

Mr. DeLone: Did Mr. Shanaman put a date on that?

A. Early 50's. That is my recollection of it. I was rather closely identified with the technical association of the pulp and paper industry for a number of years. I operated as its local secretary-treasurer out here, and consequently, I had a rather close look at what was going on in the industry, because I was obliged to attend all the meetings. So I was quite familiar with progress being made by companies like Solvay and Mathieson with regard to the chlorine dioxide process.

I think that the early fifties would be a good guess as to when the first commercial installation was attempted by Solvay.

[fol. 1719] Q. To your knowledge, for how many years thereafter did this tie-in contract persist?

Mr. DeLone: Well, now, would you just describe it as the contract previously referred to, because I do not think the witness has characterized it, and I don't think he intended it. He does not know the precise terms, nor did he intend to express any legal opinion as to its propriety.

Mr. Freed: I will be happy to withdraw the question.

By Mr. Freed:

Q. To your knowledge, Mr. Shanaman, for how many years after the early 1950's did Solvay continue to grant its license on the understanding that the requirements of sodium chlorate of the licensee would be purchased from Solvay?

A. Mr. Freed, I don't purport to know whether Solvay has ever discontinued what they were doing on a national plane or international plane. Therefore, I wish you would consider my remarks as related exclusively to the Northwest area where I was primarily interested because of my sodium chlorate production.

We first were very unhappy and somewhat humiliated over the fact that we had several of our very good customers using chlorate which did not originate at Portland, and we, therefore, sought opportunities to correct that situation so [fol. 1720] that our friends would be using our chlorates, and as I previously stated, we were successful in obtaining a small amount—token amount of chlorate from both accounts, primarily because of friendship, and also the buyers, our friends, were convinced that our sales logic seemed to make sense, that if transportation was interrupted from a source of supply at Henderson, Nevada, it would be to their advantage to have a second source and close at hand, at Portland, Oregon.

Now, whereas we were told that the contract was exclusive in nature, I never saw it. I do know that both mills felt so strongly about a second source of supply that they purchased from us, and if there was an exclusive feature, it was in violation thereof.

We set about to correct the situation that I have mentioned with regard to a process dictating who was going to use sodium chlorate, and from what source, and I initiated an approach to the Mathieson—Olin Mathieson by that time, by making an appointment to call on John Logan and Don Drummond.

I had known these fellows for some years, and I knew, as I previously stated, that Mathieson had not capitalized on the tremendous amount of work and very heavy expense that had been incurred in the development of the

[fol. 1721] chlorine dioxide know-how, which they possessed.

I felt that we could give them an answer in this part of the country, at least to the problem which they had in competing with Solvay. So I offered to push the Mathieson process for chlorine dioxide generation along with our effort to sell sodium chlorate, and because we were active in a sales way, five days a week in and out of the pulp mills constantly, I was convinced we had a better opportunity to establish Mathieson's chlorine dioxide process in the pulp and paper industry in competition with Solvay than they could themselves.

I perhaps caught them in a time when they were susceptible to flattery or to making an arrangement, and they accepted my views, and they gave me the opportunity to use my sales force for the purposes I have just described.

I, therefore, say that our technical service people and our sales people did an excellent job, because I think the record, if it exists or can be reviewed, would show that whereas we had a very, very modest amount of sodium chlorate to sell to the pulp and paper industry in the Northwest in the early 50's, we in due course not only participated in the requirements of Puget Sound Pulp and Timber Company [fol. 1722] and the Potlatch Forest Products, but we installed the Mathieson system in every other mill that I know anything about in the Northwest from the time that we made the arrangement with Mathieson to work on their process.

There is not another instance, to my knowledge, where Solvay was successful in putting their own process up here in the Northwest, because we offered the service that was necessary, and we also had the chlorate in their own back yard, and we were offering something that was not duplicated by the competition, the combination of Solvay and American Potash.

Subsequently we obtained all of the business, the sodium chlorate business at both Puget Sound Pulp and Timber and the Potlatch Forests, because we took the natural advantage of knowledge that the contract with Solvay was not a perpetual affair, and we made available to the pulp mills liquid sodium chlorate from our Portland mill, so that the mill had

a very, very definite advantage in doing business with us rather than doing business with Solvay or American Potash. So we drove them out of here economically by the fact that we manufactured sodium chlorate in liquid form, and it would be a rather prohibitive freight pattern for them to meet that type of competition with a solid material.

[fol. 1723] We simply took advantage of our natural location, and we made deliveries to the mills in tank wagons, which, certainly, they couldn't do, and it was, therefore, a rather foregone conclusion that after the—after the first contracts ran their course for Solvay, that they would have difficulty maintaining a position in this particular area.

Q. Well, what were the advantages that you sold or attempted to sell to Olin in them giving you the Mathieson process to use?

A. Well, I think I was successful in convincing them that I could do something they weren't doing for themselves.

They had appeared in a number of TAPPI—Technical Association of Pulp and Paper Industry—articles, and had given a lot of free information concerning something that was of great interest to the pulp and paper industry, but the fact remained they couldn't sell it, and they were attempting to, as I stated, sell it on a royalty basis, which didn't go.

Solvay sold theirs on a basis of installing the equipment at their expense and then amortizing it over the period of the contract period, and——

Q. (Interposing) I am sorry, sir. Installing the equip-
[fol. 1724] ment at their expense,—Solvay paid for the equipment?

A. I think they paid for a portion of it, and the mill paid for a portion of it, and they provided all of the engineering expense free of charge, and in return for which, I believe, they were given a contract for so many years to take care of the chlorate, and maybe some other things I wouldn't know of. I never have seen one of their contracts.

But Mathieson, apparently, at that stage had no definite program to combat Solvay, and we provided them a means of at least trying something which apparently wasn't being tried elsewhere, and I think that the record speaks for itself, that we were somewhat successful in doing what they wern't doing for themselves.

Q. In what way was Olin competing with Solvay at that time apart from whose process would be installed at a particular plant?

A. I wouldn't know that, Mr. Freed.

Q. I asked the question because you referred to Mathieson as competing with Solvay at that time but not doing a job for themselves.

A. On a process—on the process, competing in the sense that both had a process, and both had something to sell. [fol. 1725] Mathieson had attempted to sell its process on the basis of receiving a royalty from the pulp mill per ton of product produced by the use of this process.

Solvay, a competitor, its only competitor at that time, to my knowledge, competed on the basis of not charging the royalty, and Mathieson did not seem to have the answer, apparently being reluctant to give up the idea of it, and I think that by the time that I spoke to the gentleman in Baltimore, that they were somewhat convinced that they had spent an awful lot of money to develop a process, and apparently weren't going to receive anything from it, nor would they have the pleasure of seeing the process used in the pulp industry, which is rather significant in this particular industry, because it is much better to have something installed in a pulp mill so that you have an opportunity to have you own people going there in a technical way, or a sales way, than to attempt to influence the pulp industry by the medium of advertising.

Q. At the time you negotiated the original chlorine dioxide license agreement with Olin, the agreement included a royalty provision?

A. A very, very nominal one. As a matter of fact, it was, [fol. 1726] I think, more of a face-saving thing than anything else. It was, as I recall, peanuts.

Q. It was 50 cents a ton?

A. Something like that.

Q. Because it was peanuts, what did Olin stand to gain in the Northwest from your promotion?

A. The business they would expect to get. After all, I had known these gentlemen a long time. If I could be pardoned for using the personal equation, I think they had a measure of confidence in my ability to do something that I said I thought could be done, and I believe that they were willing

to see whether or not I could do it; and since the cost would be nothing for them, I think that they had to put some sort of consideration into the agreement, and they put the amount in there wherever it tied fast to the sodium chlorate sales, which we all recognized would be rather nominal, and it was.

Q. Well, I believe, sir, you have testified to the very great importance that this—or contracts between you and Mathieson, had to the installation of the Mathieson process and the promotion of Pennsalt sales, but in terms of the advantage to accrue to Olin from having its process installed in paper mills of the Northwest, what did they look forward to?

[fol. 1727] A. Well, if I could prove to them that there was a way of selling their process in competition with Solvay, perhaps they felt that what we could do, maybe they could do, and maybe that they perhaps had been living so close to the forest that they couldn't see the trees, and maybe if we could do something, certainly it wasn't going to cost them anything. So I think they took one corner of the United States and said, "Well, let that fellow go ahead and do it, and we will see how he makes out."

Q. At the time of your original discussions with Mr. Logan and Mr. Drummond, was there any discussion of the manner in which this technique you were pioneering might be used in other parts of the country?

A. No.

Q. Do you recall when the first time was that Pennsalt considered building a sodium chlorate facility in the east?

A. Well, I—that has been a long-drawn-out procedure. We have had organization changes which upset the continuity of consideration for the project. I couldn't put any date on it.

I would say that it commenced almost from the time that our chlorate operation became really successful out here on the West Coast, and I think that this idea of chlorate in the [fol. 1728] other parts of the country kept reoccurring.

But we had changes in top management of our corporation, several during the time of this consideration, and I think that probably threw it off, and delayed it, because there are more important things to consider than, perhaps,

the building of an additional plant in other parts of the country, which requires a considerable amount of study.

Q. When, to your recollection, did it first become apparent to Olin that your efforts with the chlorine dioxide process in the Northwest was successful enough to be tried out in other parts of the country, if you can recall any conversations?

A. I don't recall that that was ever discussed at any time in my presence. Certainly, they were never that complimentary, to tell me they thought we had done such a fine job, and now they were going to try something different.

I think they were somewhat surprised, and I think that they were perhaps pleased with what we had been able to do in combatting the efforts of Solvay, and also American Potash.

I couldn't put my finger on any dates. I would say that they probably came to the realization that we were being [fol. 1729] successful when they learned through channels inside the pulp and paper industry that certain substantial people in the Northwest were about to install the Mathieson system as compared to Solvay.

After all, Solvay, from the very earliest years, had a tremendous advantage by reason of the fact that they had the two installations and then had very frequently, very competent technical people in this area calling on other pulp and paper mills and pointing to the fact how successful the chlorine dioxide operation had been at Puget Sound Pulp and Timber Company and Potlatch.

I am sure that Mathieson—Olin Mathieson knew that—and under the circumstances, when we made our first installation for Mathieson, or used the process, not for them, but used their process, they, naturally, were made aware of it; and I think they followed probably the course with some interest, and I think that they became aware also of the fact that Solvay was not making any other installations—that it was only Mathieson, through our efforts.

(Whereupon, a short recess was taken.)

[fol. 1730] (Whereupon, Plaintiff's F. C. Shanaman Exhibit Number 1 was marked for identification.)

By Mr. Freed:

Q. I believe, sir, that you have testified that the Oldbury plant in Mississippi was, to your knowledge, the third sodium chlorate plant built in the United States.

Can you trace——

A. (Interposing) I think, as I recall the questioning, you were speaking about those in the east at the time when we were identifying the location at Columbus.

Prior to building the plant by Oldbury at Columbus, Mississippi, of course, we had some sodium chlorate produced out here during the war, and following the war we had a continuation of the operation in the hands of the Western Electro-Chemical Corporation, which got started in Los Angeles and then subsequently moved into the plant for the production of magnesium at Henderson, Nevada, and it is there where they produced the sodium chlorate, and subsequently the ammonium perchlorate.

Mr. DeLone: You made reference to a war. Which war are you talking about?

The Witness: The Second World War.

By Mr. Freed:

Q. In light of your last response, then, was Western Electro-Chemical, and subsequently, American Potash, in [fol. 1731] competition with Pennsalt's Portland plant at all times beginning in 1941 and on?

A. During the war, yes, they were in competition, running from the very beginning from the time they got started in a very modest way in Los Angeles.

Although, I think by choice, at the outset they sought to export their chlorate because of the very, very high price that they could get for their product. Because of their smallness of operation, it would have been very difficult for them to sell at the level of our sales price, and the frozen prices that we had. They probably sought opportunities, and successfully, in Mexico and elsewhere, for their chlorates.

Q. When you speak of export, are you referring to sales outside of the United States?

A. Right.

Q. Then at the time you initially set your sodium chlorate

price at Portland, the existence of Western Electro-Chemical was not a factor?

A. They were not existing.

Q. They were not in existence?

A. No.

Q. In your recollection, did Western or its successor, American Potash, ever at any time influence the price that [fol. 1732] you set for Pennsalt's sales of sodium chlorate?

Mr. DeLone: You have reference to their Henderson, Nevada operation?

Mr. Freed: Yes, sir.

A. When we sold our chlorate into the Utah area, we had to be mindful of the freight rate from Henderson, Nevada, and we would equalize against it in the event that we found business in the area where they were a primary producer and supplier.

Where we ran across a delivered price that was lower than our base price at Portland, plus the freight, we equalized against same.

To that extent, we were conscious of their existence and their pricing, and so on.

Mr. Freed, for your enlightenment with regard to American Potash and Western, just prior to the time American Potash acquired it, they were primarily producers of sodium chlorate to supply the needs of the ammonium perchlorate plant, which was installed to supply the Government.

During the time when the Government was not demanding ammonium perchlorate, they chose to continue the operation of the sodium chlorate plant, and they did produce an irregular amount of sodium chlorate, which they at those times offered in the market place.

[fol. 1733] It was not a great amount. They sold it through—mostly through distributors, such as Chipman Chemical Company, the distributors in California.

But those distributors never could rely on a continuity of supply from that source. So it never was an important factor for us to consider, and consequently, their influence on the price pattern out here was negligible, except where we might run across them in an area where maybe some mining company would tell us, "we can buy this cheaper from Henderson, Nevada," and would disclose to us what

the freight rate happened to be, and so on, and we would equalize it.

If we wanted the business, we didn't let it go on to American Potash.

Q. The factors which you just mentioned with regard to the significance of American Potash's competition explain the uniformity in Pennsalt's sodium—bulk sodium chlorate price of $9.00 per ton, which, according to Pennsalt's answers to interrogatories set three, item 22, has been $9.00 a ton since 1951?

A. I should think so. It certainly had a bearing on it. I wouldn't say it was the only reason. It certainly had a very —for the very reason we were conscious of the fact that when they were producing perchlorate they certainly didn't [fol. 1734] have sodium chlorate, and since the trade that would use it, the Uranium people, for example, aren't going to tie fast to an irregular supply.

So, if they could buy a small amount of sodium chlorate from American Potash and it was cheaper than ours, it would be simpler for us not to reduce our price to meet it, unless we actually needed some business so badly we wanted to meet that competition, and which usually wasn't the case.

Q. Since 1951 has there been any significant change in the cost of production or any of the other ingredients that go into making up that nine dollar price?

A. There have been increases in labor, there have been increases in the cost of delivering a ton of salt, and increases in other services that are required for the production of chlorates, but those have been offset by technological developments, and also expanding of the plant.

So, we are producing more, and consequently the cost of our spread—administrative costs are spread over a larger number of tons.

* * * * * * *

[fol. 1735] Q. Could you recall for us now the basis on which you were successful in extending the chlorine dioxide agreement with Olin?

A. Well, I think that I—I hope I may be pardoned for saying that I think we did such a damned good job for them, they were very glad to extend the agreement. It has nothing to do with these comments I made with regard to the second

paragraph. There has never been any tie-in between sodium chlorate and—supplied to them and the fact that we had an opportunity to make use of their process for generation of chlorine dioxide.

As I have stated previously, I initiated the idea of making use of their process, and I hope, and Mr. Logan agrees with me, that we did a rather creditable job for them.

As I stated also previously, we had at times some excess chlorate, and I offered Mr. Logan an opportunity to sell through his sales organization approximately 2,000 tons. I am sorry to say he didn't always make good on selling it, but I think he did a rather creditable job of helping to market some that we had in excess until such time as our market developed to the point where we no longer felt it advisable [fol. 1736] to commit any particular amount for him, and that time was going to appear in the foreseeable future as it was with regard to supplying chlorates to our own Philadelphia sales department.

Q. What was the occasion that brought you and Mr. Logan together, as referred to in the first paragraph of this memorandum, Exhibit 26?

A. I think that my recollection is that I had been discussing with him the idea of extending or changing or negotiating something with regard to our existing arrangement with respect to handling the Olin Mathieson chlorine dioxide process.

Q. But the chlorine dioxide agreement had been dated in mid-July—in July, 1953, and this was towards the end of 1957.

What produced the discussion at this period, four and a half years, or less than four and a half years after the original agreement?

A. If I may see the original agreement and see the second agreement, I might be able to comment on it.

Have you got copies here?

Mr. DeLone: Off the record.

(Discussion off the record.)

A. It is my recollection, Mr. Freed, that during the intervening period from July, 1953 from this original agreement [fol. 1737] was signed by Mr. Drake, that by 1957 certain

requests for alteration of the agreement had been made by Mr. Logan, and I think that the new agreement entered into in 1956 purports——

Mr. DeLone: 1956?

A. (Continuing) 1957, excuse me,—October 7, 1957, purports to take care of that situation or situations.

In other words, as I recall it, we had rather broad rights involving all areas where we might want to sell or make use of a process—not sell, and this particular letter of October 7, 1957, specifically limits where we had these continuing privileges for the next five years, and Mr. Logan had requested consideration of the fact that they wanted some direct dealings which might prove to be conflicting with our own in certain areas, and I believe this is a confirmation of what Mr. Logan had requested us, and we had no reason to resist anything that Mr. Logan might desire with regard to appointing someone else in the territory where we might not be particularly active.

If it happened to be South America, or in Japan, or in Canada, or wherever he might want to appoint someone else, if it was to the benefit of Olin Mathieson, we had no reason [fol. 1738] not to agree to it, and I think that, as I recall, this particular letter was merely modifying the original one to the extent of his desires.

Q. Was there any discussion, as far as you can recall, in terms of changing this scope of or character of the agreement insofar as it applied to the United States?

A. No, no. It remained, as far as I recall, exactly as it was previously.

Q. Prior to the time that you discussed the renewal agreement with Mr. Logan, had Olin, to your knowledge, licensed anyone else in the United States to use the Mathieson process in the same way that Pennsalt had been licensed?

A. No, I don't know if they did. It never came to my attention.

Q. And do you have any knowledge of Mathieson ever authorizing any other company, other than Pennsalt, to use——

A. (Interposing) I had knowledge of the fact that they were negotiating in other markets with someone else not identified by Mr. Logan, and—but he did say that by reason

of certain activities of the Olin Mathieson Corporation, they would like to be free to negotiate with someone else, and we [fol. 1739] had no objection to their negotiating with someone else.

Q. When you refer to the "other markets," do you mean, again, outside the United States, or within the United States?

A. Outside the United States, and if they had wanted to negotiate with somebody else by 1957, I don't think in the United States we would have seriously objected.

Q. What is the meaning of the reference in this second sentence of Drake Exhibit Number 26 to your report that you were successful in extending your agreement with Olin for five years in connection with the exclusive use of Olin's chlorate equipment in the pulp and paper industry?

What did "exclusive" refer to?

A. "Exclusive" simply meant that that was the nature of the agreement when we first made it. It was of no major importance to us by that time to have an exclusive feature, because we had already been identified with the process which could be installed in pulp and paper mills, and the pressure of the Solvay position had deteriorated somewhat by reason of our efforts to sell and supply sodium chlorate in mills in liquid form here in the Northwest, and since our main interest was related to the Northwest, there was no reason for us to take a contrary point of view with what [fol. 1740] ever Mr. Logan desired in that respect.

Q. But I wonder if you could explain to us what Pennsalt had that was exclusive insofar as pertained to the Olin Mathieson chlorate equipment process?

A. When we first started, we felt that in the Northwest we should have a process exclusive as far as representing Mathieson on their chloride dioxide system in the particular area which we served with our sodium chlorate, and we had that, and we made use of it to a good advantage, because, as I stated this morning, we were placed at a very definite disadvantage when we didn't have something to talk about in competition with the Solvay position, which I have discussed, and with something to talk about, as long as we had the exclusiveness with regard to the use of the Olin Mathieson process in the area in which we considered other markets for sodium chlorate manufactured at Portland, we were

quite content, since our—in our experience by 1957 it had definitely disclosed that we were not in a position to market a process of this nature in a foreign field.

Q. At the time the agreement was renewed with Mr. Logan, was there any discussion of Pennsalt's right to use the Mathieson process in sodium chlorate sales east of the Rocky Mountains?

[fol. 1741] A. No, I don't recall the subject ever came up at all.

Q. Was it understand between you and Mr. Logan that Pennsalt did have the same exclusive right to use the process east of the Rockies that it had west, or was it a different understanding?

Mr. DeLone: You said at the time of renewal, and he has not testified that there was any exclusive right granted at the time of the renewal, as I understand his testimony.

It seems to me your question is improperly phrased in light of his previous answers.

By Mr. Freed:

Q. Perhaps there is a misunderstanding, Mr. Shanaman.

Would you read the second sentence of this memorandum into the record, and state again——

A. (Interposing) I am quoting from Mr. Willits' memorandum to the file, dated December 5, 1957, and in quotes, "He also reported he had successfully extended our existing agreement with Olin Mathieson for five years in connection with the exclusive use of Olin Mathieson's chlorate equipment in the pulp and paper industry."

Reaching out and picking a portion of my statements which may have been made at the time of that meeting, I think it is not exactly kosher as far as Mr. Willits is con-
[fol. 1742] cerned with respect to what was discussed with respect to our meaning—the meaning of our—and I am referring—I did refer, and I meant to refer to the fact that our men out here—Pennsalt's position out here with regard to the use of Olin Mathieson—and Olin Mathieson was being told in our agreement that we would represent them exclusively on the Olin Mathieson chlorate equipment in the pulp and paper industry, and no one else, because we were, by

that time, rather well identified with the installation of the Olin Mathieson chlorate process and equipment.

Q. And was there any change made in the 1953 agreement of your renewal with respect to your exclusive use of the Olin Mathieson process?

A. Not to my knowledge. We had virtually the same position as we formerly had.

Q. And my next question then is whether there was any discussion between you and Mr. Logan as to the application of this agreement outside of Pacific—the eleven Pacific States?

A. Never. At no time did Mr. Logan or I ever discuss the idea that we were going to attempt to extend

We had the right; but at no time did we; I suppose, by reason of the wording, we could have had we wanted to do [fol. 1743]. so. But we certainly had no intention of doing so, by reason of the fact that we were not equipped with the necessary personnel to do a job in other sections of the country, and certainly there would be no real benefit to Pennsalt in exercising the privileges under the contract to make use of the Olin Mathieson process outside of the Northwest—in the area contiguous to our chlorate operations at Portland, Oregon.

Q. Well, the second paragraph of the memorandum reads:

> "Mr. Shanaman satisfied Mr. Logan that supply"
> —referring to 2,000 tons of chlorate——
> "would be available in that should we decide to build a chlorate plant in the East, it would undoubtedly take two or three years before production from that facility would be available."

Can you recall what you told Mr. Logan about Pennsalt's —about the state of Pennsalt's plans to build a chlorate plant?

A. Yes, I think I can.

Again, let me preface my remarks by saying again I think it is rather unfortunate that Mr. Willits lifted a portion of comment without elaboration, but nevertheless I am. ad- [fol. 1744] dressing myself to what is here, in response to your question.

There are two separate portions to this particular memorandum.

One relates to my announcement in the meeting that I had just concluded the new agreement to—extension of the agreement with Olin Mathieson for five years, and for the reasons that I have just explained.

Secondly, I announced to those present that I had persuaded Mr. Logan to very seriously consider the sale of some of our excess chlorate from the West into the market in the East, and which I thought his sales department should be able to sell without great difficulty, because of their well-established position, particularly in the Southeast; and because of my knowledge of the fact that the demand for chlorine dioxide was being expanded in the bleaching of the craft pulp in the Southeast, and that 2,000 tons, which I might have available from our Portland chlorate production, would not be an unreasonable amount, in my opinion, to attempt to sell.

Now, to me this represented as much of a sales pitch to Logan as a sales pitch could be considered for any pulp [fol. 1745] mill or anyone else that might be a potential user or buyer of sodium chlorate.

The 2,000 tons of sodium chlorate, which I discussed with Mr. Logan, had nothing whatsoever to do with the agreement to have an exclusive arrangement with respect to their process or equipment; nor did it have any bearing on our agreement to continue to push their process, and to my knowledge, it never had any relationship whatsoever to their willingness to grant us a continuation of the use of their process, should we care to do so.

I think that is about as much as I can say on it.

Q. Do you recall telling Mr. Logan what the status of Pennsalt's plans to build a sodium chlorate plant in the East were?

A. I never discussed the status with Mr. Logan of any of our plans with regard to chlorate. I merely, as I believe I stated this morning, extended Mr. Logan the courtesy, which I feel others would have extended to me, including Mr. Logan, that making a request for him to market a product through his sales force, in which I had confidence, that they could market some excess chlorate for me without injury to anything else that they might be doing.

[fol. 1746] I felt it incumbent that I grant him the courtesy of telling him that should we at any time decide that we were going to build a plant other than at Portland, Oregon, that I would tell him so, and I think he would be entitled to that courtesy.

Q. As of this time had Pennsalt made a decision with respect to building a plant in the East?

A. I never knew that any decision had ever been made to build a plant in the East, Mr. Freed, in 1957 or '58, at all. I certainly, to the contrary, believe that no decision had been made.

Q. And at the time of this meeting with Mr. Logan, the question of building a sodium chlorate plant in the East was still under consideration by Pennsalt, is that correct?

A. I think it was a continuous consideration dating back to the early nineteen fifties, until the date of this memorandum. I don't think it stopped then, either.

. . . . . .

[fol. 1747] Mr. Freed: I would like to have the reporter mark as Plaintiff's F. C. Shanaman Exhibit Number 10 a letter dated January 14, 1958, from Mr. Logan to Mr. Shanaman.

(Plaintiff's Exhibit Number 10, F. C. Shanaman, marked for identification.)

(Document was handed to the witness.)

A. Yes, I recall that, and I recall the discussion that I had with Mr. Logan.

By Mr. Freed:

Q. Can you tell us what that discussion was, sir?

A. I told him that the sale of sodium chlorate as a weed-killing agent to the railroads involved a great amount of experience and service such as was rendered by Chipman Chemical Company, Reed, and also Boyle, who were very well equipped with the special equipment necessary to render the type of annual contract weed-killing services demanded by the railroads in the United States; and that this, therefore, was something that I did not feel that he should

[fol. 1748] attempt to engage in, and I undoubtedly recited our own experience with regard to the investigation of the railroad weed-killing purchases, and which I touched upon previously, when I was referring to the Chipman Chemical Company.

Q. What was the nature of the arrangement referred to there with Mr. Logan insofar as the customers to whom Olin Mathieson might sell the sodium chlorate or the say that Pennsalt might have in Olin's choice of customers?

A. Nothing. We didn't tell them where to go, or tell them how to do anything. I merely felt it incumbent upon me to tell Mr. Logan at any time if he suggested to sell chlorate, and if I thought that it was going to involve something of which he had no knowledge, and certainly he has no knowledge when he refers in the last sentence of paragraph two that he would talk further with Roy or Bryan Shera. Neither had had any experience or knowledge of the chlorate usage in railroad weed-killing.

When I first got started with chlorate in Portland, I thought I could sell a heck of a lot of sodium chlorate to the railroads, and I found out that I was completely wrong; and it also had been included as one of the ideas in my original [fol. 1749] market review for the Eleven Western States, that there was a substantial amount of chlorate which was used by the railroads, and which we probably could sell to replace the chlorate being supplied by the Chipman Chemical Company.

I felt that in this Western area we had a considerable amount of freight leverage which we could use, but I found, much to my surprise, that the freight leverage did not transcend the desires of the engineering department of the railroads to make use of the facilities offered by the Chipman Chemical Company, and others, and the application methods, covered by contract, which we were not prepared to engage in, because of the necessity of having specialized equipment—specialized equipment, specialized personnel, and also a know-how which did not exist with us, and I passed that information along to Mr. Logan.

I presume that he was referring to the fact that he might —might believe that he could influence a certain amount of business with the railroads because of his freight picture, and which he soon would find was fallacious.

Q. Can you recall for us any facts that are known to you why Mr. Logan would say that he was "not sure this was [fol. 1750] included in the intent of our arrangement with you"?

A. Yes.

The question had never arisen with regard to where he was going to sell 2,000 tons, or whatever quantity of chlorate I discussed with him.

I did say that I thought his sales department was equal to the job of moving it. I didn't put any restrictions at the time on it.

I did tell him that we would certainly be glad to consult and help him, and I think I was doing a fairly decent job of consulting with him and giving him advice against getting enmeshed in something where he couldn't succeed, and I wanted him to succeed rather than fail, and I think he would have failed if he'd got involved in this sort of thing.

Q. Do you know whether the opportunity referred to here by Mr. Logan was an opportunity to serve a customer who was already being served by Pennsalt?

A. I don't, no. We did not serve any railroads. We had handled all of our chlorate through Chipman Chemical Company, or Boyle, or Reed, or one of the others.

Q. And through those companies did you serve customers [fol. 1751] in the Eastern part of the United States, as well as the West?

A. No, we served them out here. They bought for Western railroads. If they ever took any chlorate East, it probably never went farther East than Chicago, and it was then in the hands of the Chipman Chemical Company, which profited less because of the long haul, and the freight equalization, and I think they only made use of chlorate in that area when they were very short of chlorate from other sources.

I think it cost them more to use our chlorate for weed-killing in the Midwestern area than it cost them if they purchased from Oldbury Chemical Company.

Q. Then, is it your testimony that at the time of that inquiry from Mr. Logan, you did not know who the customers were that he had in mind?

A. No, he certainly made no mention of railroads, and I

answered it accordingly. I don't recall that he ever disclosed who he had in mind.

Q. Was the contract which you had with Chipman at the time an exclusive arrangement insofar as the furnishing of sodium chlorate to railroads for weed-killing purposes was concerned?

[fol. 1752] A. No, we can sell to anyone. We did sell to them on the basis of their specialized service, but we encouraged them to use our chlorate in our area, rather than purchasing it from other sources.

Q. And did Chipman undertake to do that for you, to sell only your chlorate in the Pacific Northwest area?

A. Yes, they did the same with AmPot in the South, and I think they did the same thing with regard to chlorate from Oldbury, and chlorate subsequently from Hooker, I presume, in the Southeast.

I know they didn't get chlorate for some of those Eastern railroads from us, so I presume they must have received it from one of the manufacturers elsewhere—any other part of the country.

Q. To your knowledge, did Pennsalt ever sell any sodium chlorate for weed-killing purposes to railroads directly?

A. No, I don't know that we ever did. I think we tried, and mighty hard, in the beginning, and whether or not I was ever successful in selling any, I just wouldn't know. But I do know that it was a very discouraging effort that I received in trying to interest the railroads in doing business with us, because I quickly found that they purchased [fol. 1753] practically no sodium chlorate direct. But they bought it in combinations, which included the service.

Q. In light of the difficulties which you were having with the railroads, can you tell us why, instead of discouraging Mr. Logan on these sales, you did not offer to assist him in making sales of sodium chlorate in an area in which Pennsalt had not previously sold?

Mr. DeLone: I object to the form of that question, "In light of the difficulties which you were having."

This witness has testified that when he first went into the chlorate business, that is, in 1940, he tried, and was unsuc-

cessful, and after that sold to Chipman, which in turn sold it to railroads.

There is no testimony that I understand of difficulties he was having with reference to the railroads in 1958, eighteen years later.

I think the question is, therefore, improper.

Mr. Freed: I will withdraw the question.

By Mr. Freed:

Q. I will ask you, Mr. Shanaman, in light of the fact—and correct me if I misstate the facts—that Pennsalt was not at this time selling sodium chlorate for use by the railroads in the East for weed-killing purposes, why did you [fol. 1754] not pick the opportunity offered by Mr. Logan to——

A. (Interposing) He didn't offer any opportunity. You—he merely asked me the question, "Do you think I can sell—I think I have an opportunity," and I certainly didn't believe he knew what he was talking about, and subsequently it was proved to be just that.

It is a very correct assumption on the part of anyone looking at a use that is large that they can participate. Investigation subsequently could prove that there are some tricks involved that would eliminate you from participation, and I had learned that, as I explained, and I passed that information along to Mr. Logan, as I feel that was the nature of our understanding, and at any time that he needed help or information, I would give it to him; and I think I gave him exactly what he should have had.

Q. What I don't understand, sir, is, in light of your statement that you did not know the identity of the customers——

A. (Interposing) It would not make any difference, Mr. Freed, who in the hell it was in the railroad industry. He just isn't going to sell sodium chlorate, per se, to any railroad in the United States.

He apparently thought all he had to do was just go and sell sodium chlorate, and it just isn't done that way. [fol. 1755] He would have to make a formulation, and consequently, when this was disclosed, he agreed that he was probably off base in even thinking about the subject, be-

cause there are other places where he could sell sodium chlorate; but I did not believe he was going to sell any in the railroad field.

. . . . . .

[fol. 1756] Mr. Freed: I would like the reporter to mark as Plaintiff's F. C. Shanaman Exhibit Number 14 a letter from Mr. Logan to Mr. Shanaman dated June 16, 1958.

(Plaintiff's Exhibit F. C. Shanaman Exhibit Number 14 marked for identification.)

By Mr. Freed:

Q. Mr. Shanaman, does this letter refresh your recollection on the efforts, if any, which were extended by Pennsalt to Olin in connection with the sales of sodium chlorate to [fol. 1757] Brunswick Pulp and Paper Company?

A. No, I believe Mr. Logan is referring to the fact that I was sort of jogging him up on the fact that he was not selling as much chlorate as I thought perhaps he should during the year of '58, and I was suggesting to him that if there were any mills out here where we had any particular friendships, that we might be of assistance to him, and I probably mentioned to him Scott Paper Company, and that is what he is referring to here, because they were a part owner in the Brunswick Pulp and Paper Company, and we had been their sole supplier for many years up at the plant they took over at Everett—the old Soundview Pulp Company.

Mr. DeLone: Everett, Washington?

A. Everett, Washington.

And he returns the comment that they have concluded an arrangement with the Brunswick Pulp and Paper Company for 600 tons of chlorate, and this is equivalent to about 50 per cent of their requirements. So he indicates that we are on the track at Brunswick, "I will initiate steps on the other mills you've mentioned."

I do not recall the other mills that I mentioned. But I [fol. 1758] presume they referred to mills in the South which were owned and operated by companies here in the Northwest, such as Rayonier, Crown Zellerbach.

Q. Was Waldorf one?

A. Waldorf? I don't know. I don't know whether Waldorf is one. I think that our activities with regard to Waldorf in Montana came after that date. I couldn't tell you.

My recollection is that Waldorf was not one where I personally could help.

Maybe Mr. Shera or Mr. Fisher might have been able to help by reason of certain technical assistance they gave to Waldorf in the Midwest.

Q. Can you recall whether Union Bag was one of those in which you had contacts?

A. It could be, because I think that we have been in a position to be of assistance with Union Bag. It could be, yes.

Q. Can you tell us what the nature of the assistance was?

A. Through the administrative officers of the company. We might assist by reason of friendships.

Q. Was Gulf States one of those that you mentioned to Mr. Logan?

A. I wouldn't know.

[fol. 1759] Q. How about Champion Paper Company?

A. No, I don't think we have any position at all with Champion. As far as helping them in any way, I certainly lost my only contact with them when Dr. Murdock left.

Q. Do you recall which of the mills you have just mentioned you actually did help Olin on?

A. No, I don't. I don't recall that we helped them on any of them.

Q. Your testimony is that you have no recollection of your own of you, yourself, actually carrying out the assistance that you offered to Mr. Logan?

A. Correct. I do not recall that Mr. Logan requested any assistance, and if he did, I do not recall that I ever gave it to him. I hope he did, and I hope I gave it to him.

Mr. Freed: I would like to ask the reporter to mark as F. C. Shanaman Exhibit Number 15 a memorandum dated September 8, 1958, from Mr. Land, to Mr. Shanaman.

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[fol. 1760] Q. At the time in 1958 that you were furnishing sodium chlorate to both Olin and Pennsalt in the East, was it your understanding that Olin and Pennsalt would compete in the sale of their sodium chlorate to potential customers in the East?

Mr. DeLone: I object to the form of that question. The reference to their sodium chlorate is to me completely meaningless.

Mr. Freed: The sodium chlorate made available to each of those companies in the East.

Mr. DeLone: May I have the question back?

(The last question was read back by the reporter.)

A. The subject was never discussed at any time by me with anyone, and what Mr. Land did with any sodium chlorate which I made available to him and for the purpose of their sale in the East, it was my expectation that it would compete with chlorate either originating with Hooker, Oldbury, or any chlorate that we might deliver to Mr. Logan, and if they did, why, that was their problem and certainly wasn't mine. I wouldn't know a thing about it.

By Mr. Freed:

Q. Did you have any understanding or any conversation with Mr. Logan with respect to competition between Penn- [fol. 1761] salt in the East and Olin in the East, and the sale of sodium chlorate furnished by Pennsalt of Washington?

A. To my recollection, the subject was never broached.

Q. And are you aware, sir, of any arrangement or understanding between Pennsalt and Olin——

A. (Interposing) I am not.

Mr. DeLone: Wait until you hear the question.

By Mr. Freed, continuing:

Q. —regarding competition between those two companies in the sale of sodium chlorate in the East?

A. I am not.

Q. Are there any facts known to you, sir, which would lead you to believe that Pennsalt and Olin were not in fact

competing in the sale of sodium chlorate in the East which had been furnished to each of those companies by your Division?

A. I have no facts.

Q. At any time between the commencement of your sodium chlorate sales discussions with Mr. Logan in 1957 and the beginning of 1960, did you participate in any discussions concerning Pennsalt and Olin competing in the sale of sodium chlorate in the East?

A. To my recollection, no. We never attended any meetings that related to the subject that you have mentioned.

[fol. 1762] Q. Then at any time between the commencement of the sales arrangement with Olin and at the time of the joint venture agreement negotiated at the beginning of 1960, were you aware of any arrangement or understanding between the two companies which would circumscribe or limit the competition between the two of them in the sales of sodium chlorate in the East?

A. No.

Q. In the selling efforts which Pennsalt and Olin each made in the East in 1958 and 1959, was the technical and other assistance, which could be afforded by Pennsalt-Washington, to be available equally to those companies?

A. Yes. Whether or not there was any unequal request was certainly—certainly I can—I think with confidence say that any reasonable request that either one of them had made, we would comply in the event the personnel would happen to be available.

I do not recall any time when either made any request for assistance that we wouldn't have provided.

As a matter of fact, I knew practically nothing about the efforts of selling the chlorate which we made available to Logan, or to Mr. Land, and with their respective depart-

[fol. 1763] ments. I felt once I had encouraged the sales to be made, that I had fulfilled the measures that I felt were necessary as an expediency while we had excess production at our Portland plant, and I didn't involve myself in the affairs of the others. I left that entirely up to them.

Q. Then as long as the sodium chlorate was being made available for sale in the East, Pennsalt-Washington was neutral with respect to who sold it, is that correct?

A. That is correct.

Q. In the limitations to which you referred at the beginning of this morning's testimony, Mr. Shanaman, as having arisen in discussions with Mr. Logan, subsequent to your first sodium chlorate sales conversation with him, was there any conversation at any time with respect to Olin's selling sodium chlorate furnished by Pennsalt outside of the Southeastern part of the United States?

A. Well, as I stated earlier, Mr. Freed, I do not have that kind of a memory which permits me to give details. I can say to you, however, that I do not recall any instance where Mr. Logan requested me to make available or asked me to—asked me a question concerning the—whether I [fol. 1764] would like to have him sell bulk sodium chlorate in tank car quantities to any industry other than the pulp and paper industry in the Southeast.

We never offered them either liquid sodium chlorate, we never offered them any packaged sodium chlorate of any kind. It never entered our discussions at any time.

The 2,000 tons which we originally discussed was in tank cars similar to the ones that we were shipping to the pulp and paper industry in the Northwest.

Q. Then the offer which you made to Mr. Logan was confined to a form and a means of delivery which were adaptable only to the uses of the pulp and paper industry at that time—is that correct, sir?

A. Principally, yes, although it is conceivable that as—maybe somebody else would run across a use for sodium chlorate unknown to us here in the West where our industry is certainly less dense than in the Eastern part of the United States, and that it might require to serve that use sodium chlorate in the same grade material and the same type of tank car.

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[fol. 1765] Cross Examination.

By Mr. DeLone:

Q. Now, there is one other subject.

Yesterday there was reference to the exclusivity of the license or immunity agreement between Pennsalt and Olin concerning the Olin Mathieson chlorine dioxide process and know-how.

I show you the agreement, the memorandum of agreement dated July 31, 1953, and ask you to read it, unless you recall it, because I think you have seen it recently, and tell me whether or not in the agreement itself you find any provision which to you connotes exclusivity?

Mr. Freed: I object to that question. The document speaks for itself.

I believe Mr. Shanaman has testified fully about his own interpretation of it previously. I don't believe the document itself is any further evidence of Mr. Shanaman's thinking than that that has been previously testified to.

Mr. Delone: For my own part, I feel the witness is entitled to look at the document and see if that is of any aid to him in recalling this transaction.

[fol. 1766] Go ahead and answer the question, if you can.

A. If the question is related to whether I find any reference to exclusivity that you mentioned, if you will just say "exclusive provision," in the contract, I would say no, I see none.

By Mr. DeLone:

Q. So far as the actual negotiation of that agreement in 1953, who negotiated the agreement with Olin Mathieson?

A. I set the stage for it. The wording was arranged by Mr. Drake, and I presume with an attorney in the Philadelphia office, and they, with Mr. Logan, apparently made the arrangements for the type of document here.

I do not even see Mr. Logan's name on the document.

Q. Were you present when Mr. Drake and Mr. Logan discussed this, assuming that they did?

A. No, I don't even know whether Mr. Logan was present when this was done.

Q. Had you originally set the stage for this?

A. Yes.

Q. Do you recall what, if anything, you said about exclusive provisions that you were seeking?

[fol. 1767] A. Well, actually the details of the contract really weren't discussed between Logan and myself. We agreed on certain broad things with regard to the purchase—sale and purchase of chlorate for an indefinite period, and Mr. Logan certainly understood that he could alter the situation any time he wanted.

Our only interest, as I expressed it to Mr. Logan, at the time, was that we did not want Olin Mathieson making arrangements with pump outfits and conveyor outfits and boiler outfits to go into pulp mills and claim that they too could install an Olin Mathieson system, since the dilution under these conditions would be so great that it would be unlikely that a pulp mill would attach very much significance to our understanding of the Olin Mathieson system to a greater degree than somebody who is only interested in making a nickel out of a particular piece of equipment.

Q. You said, I think, and I may have misunderstood you, that you had discussion with him about purchase and sale of sodium chlorate.

Did you discuss sodium chlorate—purchase and sale, or did you discuss the chlorine dioxide generating process?

[fol. 1768] A. If it was in relation to this, it was obviously a chlorine dioxide system, because that preceded the time when we were offering them chlorate.

I misunderstood your question.

Q. When in October of 1957 you negotiated with Mr. Logan the extension of the chlorine dioxide generating immunity agreement, if I may call it that for short, was the subject of exclusivity then discussed?

I am showing you the extension agreement.

A. Well, this extension agreement, as I recall, was made as a result of Mr. Logan several times during the intervening period between July, 1953 and October, 1957, requesting some alterations in our understanding of what we were going to do in representing them on—with their equipment or the process.

For example, request has been made that we alter territory. I recall that there was some reference made to Japan,

and I recall there was some reference made to Canada, and so on, which certainly gives evidence of the fact that both Mr. Logan and I seemed to have a meeting of the minds in our first understanding reached with regard to what we were going to do on behalf of Olin Mathieson and the installation of their process in the Northwest.

I think that the letter of October 7th probably more [fol. 1769] clearly identifies the understanding between Mr. Logan and myself, and I, therefore, feel that this is a reasonable statement of this particular understanding.

Redirect examination.

* * * * * * *

By Mr. Freed:

Q. Withdrawing the question and rephrasing it, can you [fol. 1770] tell us, Mr. Shanaman, whether your testimony in response to Mr. DeLone's questions today is intended by you in any way to change the substance of your testimony yesterday regarding the understanding and conversations between you and Mr. Logan regarding exclusivity?

Mr. DeLone: I object to the form of that question as an improper method of examination of any witness.

He would have to have his attention called to every word of what he said yesterday before that question could be properly answered.

By Mr. Freed:

Q. Subject to Mr. DeLone's objection, which has been placed on the record, would you state for us, Mr. Shanaman, whether your testimony today is intended by you to withdraw the testimony that you gave yesterday respecting the exclusivity of the understanding between you and Mr. Logan?

A. I think my testimony today, as far as I recall what was said, is but an amplification of what was said previously. I think it probably is an explanation of the meeting of the minds which Mr. Logan and I had, and identifies the fact that there was no reference in the original document of an exclusive feature.

Q. But apart from the mention or lack of mention of the [fol. 1771] term "exclusive" in any of the agreements, was it your understanding in your discussions with Mr. Logan that Pennsalt's right to use the Mathieson process was exclusive?

A. It was exclusive of the right of Olin Mathieson to install it, and it related specifically—our discussion at the time this original agreement was contemplated related to the Pacific Northwest, where we were going to try to make a combination of the process and the chlorates for the purpose of selling to the pulp and paper mills the chlorate and getting installation of the Olin Mathieson system.

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[fol. 1772] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 394

Philadelphia, Pennsylvania

EXCERPTS FROM PRETRIAL ORAL EXAMINATION OF ALBERT H. CLEM, TAKEN ON SEPTEMBER 28, 1961

* * * * * * *

[fol. 1773] ALBERT H. CLEM, having been duly sworn, was examined and testified as follows:

By Mr. Freed:

Q. Sir, would you state your name and home address for the record?

A. Yes, Albert H. Clem. My home address, 1130 Church Road, Wyncote, Pennsylvania.

Q. What is your present position in the Pennsalt organization?

A. Vice president of marketing.

Q. And how long have you held that position?

A. Since January 1, 1960.

Q. Prior to the beginning of 1960, what was your office in the Pennsalt organization and for how long had you held it?

A. I was general manager of the Chemicals Specialties [fol. 1774] Division from 1954 until 1960.

Q. And during the period prior to January 1, 1960, were you involved in the sale of sodium chlorate?

A. No.

Q. Were you prior to the beginning of 1960 involved in any consideration of matters relating to sodium chlorate?

A. Only as a member of the management committee meetings of which you have minutes. I sat in on those meetings.

Q. Since assuming the post of vice president-marketing, have you had occasion since the beginning of 1960 to exercise any responsibilities in connection with the sale of sodium chlorate?

A. In connection with the sale of sodium chlorate, no. I have, naturally, been on the Board of Penn-Olin and have

been on the so-called sales committee of Penn-Olin which was a two-man committee, but this was purely for the negotiation of a sales agreement between Pennsalt and Penn-Olin on sodium chlorate.

Q. In other words, your activities in respect to sodium chlorate have not included the actual sale or solicitation of sodium chlorate sales; is that correct?

A. Never.

Q. Near the conclusion of Mr. Drake's deposition this morning, reference was made to an extract from the minutes [fol. 1775] of the full Management Council Meeting No. 18 which took place in June, 1961. That document was marked as Plaintiff's Drake Exhibit 52. Reference is made in this exhibit to the presentation of data by Mr. Clem respecting the years 1955, 1959, and 1965 which were related to Pennsalt's share of the markets in various products, and one of the chemicals listed in the course of this extract is "Chlorates." Can you tell us, sir, what the nature of your report was to the full management council meeting with respect to chlorates?

A. I don't remember the numbers and I am not sure that on chlorates we charted it, but on the other products there—we probably did on chlorates, too—we developed some charts based on published projections of the growth and compared our own capacities with that and sales forecasts with that, and these are the ones we singled out as being ones where we are not keeping pace with the industry. This, of course, was just Pennsalt we are charting here, as I recall it.

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[fol. 1776] Q. Have you at any time prior to today heard about any process or production development work which Olin carried on with Vickers-Krebs relating to sodium chlorate cell development or a sodium chlorate plant?

A. I know that in the initial meeting held in New York Mr. Block was very insistent that we be sure we are using the right cell, and he mentioned the Krebs cell at that time as being worthy of a look-see. That's all I know about it.

Q. Did he mention what work or what discussions the Olin people had carried on in respect to a cell?

A. Not in any detail.

Q. Can you recall any mention at that meeting concerning efforts that Olin may have made prior thereto to entry by itself into the sodium chlorate business?

A. No.

Q. Do you recall any references during that meeting or any of the meetings you had with Olin to the possibility that Olin on its own enter or be able to enter the sodium chlorate business?

A. No, it wasn't mentioned.

Q. In any of the discussions which you had in relation to the joint venture was the question of Olin's possible entry into this business by itself ever discussed?

A. No.

[fol. 1777] Q. Was it ever discussed in any meetings of Pennsalt people only?

A. No.

Q. To your knowledge would it have made any difference in any consideration that was given by Pennsalt to this project whether Olin was or was not prepared to enter the business on its own?

Mr. DeLone: Wait. Just repeat that question, please.

(The question was read by the reporter.)

By Mr. Freed:

Q. I should have confined that: Would it have made any difference to you in your participation in these discussions or meetings?

A. Well, we would have lost a good partner but I don't see—are you trying to say—can I interrupt and see if I had the question right—are you trying to say if Olin had come out in 1959 and announced a chlorate plant in Chattanooga, let's say, would this have made any difference to us on chlorates? I am sure it would.

Q. The other part of my question is, if you had known that Olin was considering entry into this business on its own at the time you were engaged in negotiations with them, would it have made any difference in your participation in [fol. 1778] these negotiations?

A. I don't see why, actually. I don't get the trend of this question because it is a hypothetical one and——

Q. Well, it is hypothetical, sir, only in terms of your own knowledge, but you have no knowledge, as you have testified?

A. No knowledge that they were considering this on their own at all.

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[fol. 1779] Q. And have there been any discussions with respect to the sale of American Potash sodium chlorate by Penn-Olin or Pennsalt or Olin after this year?

A. No.

Q. At the meeting which you and Mr. Johns attended with American Potash was there any other discussion of the price of sodium chlorate?

A. No.

Q. Has there been any discussion since the negotiations for Penn-Olin first began of a possible increase in the price of sodium chlorate?

A. Not with five-year contracts floating around. No, there has not been.

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[fol. 1780] By Mr. Freed:

Q. Mr. Clem, I would like to show you a copy of a memorandum to the file by you dated January 25, 1960, previously marked Plaintiff's Drake Exhibit 44. In the paragraph numbered 3 on the first page the following sentence appears:

> "The possibility was suggested that Pennsalt might act as a sales agent in certain geographic areas."

[fol. 1781] I wonder if you would refresh your recollection of the meeting which is the subject of this exhibit and tell us what areas were referred to in that meeting which this particular sentence summarizes.

A. Well, I believe the word "geographic" is not particularly important to this sentence, but I think the Ag Chem people felt they might be able to move some of this tonnage, and our industrial chemical people East thought they might be able to move some of it. No specific accounts

were named at the time and it was a desire on their part to have additional material to sell.

Q. Was there any discussion at this time of the amount of sodium chlorate that Pennsalt might sell?

A. I believe we got an estimate from Drake Watson on the amount he thought would be the market potential in the agricultural chemicals that could be shipped from their plant economically and it was a relatively low number, in the 1000-ton bracket.

Q. And did you get any estimate with respect to sales by the industrial chemicals people?

A. I received no estimate from them.

Q. Does the reference to geographic areas recall anything to your mind about the area in which Pennsalt might concentrate or limit its sales effort?

[fol. 1782] A. No, no I don't recall any specific geographic area mentioned.

Q. The last line of your memorandum makes reference to matters of policy to be resolved between Messrs. Drake and Block. Do you remember what that discussion related to?

A. I believe it related to questions as to whether Penn-Olin was going to be a company per se with its own employees, et cetera, et cetera, or whether it was primarily formed as a company but Pennsalt would use its own employees and Olin its own existing sales people to carry out the functions of the Penn-Olin Company. This was a decision that had to be reached between Mr. Block and Mr. Drake as to how Penn-Olin was to operate.

Q. And ultimately was that question resolved by choosing the latter alternative?

A. Yes.

* * * * * * *

[fol. 1783] By Mr. Freed:

Q. Mr. Clem, how would the reciprocity issue which we discussed earlier be applied by Pennsalt in connection with a joint venture?

A. To the best of my knowledge, it has not been applied

on Penn-Olin. The actual application of trade relations on construction materials is not a very easy one to apply.

Q. How about with respect to the purchase of raw materials or supplies used in production by a joint venture?

Mr. DeLone: Now, do you want to know whether it has been applied?

Mr. Freed: I would like to know how it would be applied.

Mr. DeLone: Well, he said it hasn't been.

The Witness: It hasn't to my knowledge in this venture.

. . . . . .

[fol. 1784] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 396

Washington, D. C.

EXCERPTS FROM DEPOSITION OF WILLIAM COOPER WILLITS
TAKEN ON AUGUST 3, 1961

* * * * * * *

[fol. 1785] WILLIAM COOPER WILLITS was called for examination for the plaintiff the United States of America and, having been first duly sworn by the Notary, was examined and testified as follows:

EXAMINATION ON BEHALF OF THE PLAINTIFF THE UNITED STATES OF AMERICA

By Mr. Copley:

Q. Would you state your name and address for the record, sir?

A. William Cooper Willits, W-i-l-l-i-t-s.

Q. Are you presently employed by Pennsalt Chemical Corporation?

A. Yes, sir.

Q. Would you state what your present position with Pennsalt is?

A. Treasurer.

Q. What in a brief and general way are the responsibilities and duties of the Treasurer of Pennsalt?

A. The Treasurer for Pennsalt is the chief financial officer of the corporation. He is responsible for the cash management. He is responsible for the accounting function. He is responsible for the progress in planning and responsible for budgets.

Q. How long—I'm sorry, sir.

[fol. 1786] A. And any related area. An area which is not related is office management.

Q. How long have you held this position?

A. Since November of 1957.

Q. Prior to November 1957 what was your position with Pennsalt?

A. I was Assistant to the President.

Q. For how many years did you hold that?

A. One year.

Q. During that time you would have been Assistant to Mr. Drake?

A. Yes.

Q. What were your responsibilities in that position?

A. That position essentially was an administrative assistant to the President who, from time to time, was assigned special duties of the President and acted largely in all areas in which the President was interested. It's purely a staff job. In other words, I had no responsibilities other than those assigned by the President.

Q. Are you saying then that there was no decision-making function to that job other than those specifically delegated by the President?

A. That is right.

* * * * * * *

[fol. 1787] By Mr. Copley:

Q. Does Pennsalt consider, or did Pennsalt consider that its $100,000 was its capital contribution to Penn-Olin?

Mr. DeLone: That its $100,000—to what $100,000 do you make reference?

Mr. Copley: I should amend my question to state $1 million. I am referring to the figure $1 million that appears in the letter agreement, Plaintiff's Willits Exhibit No. 1.

The Witness: The letter agreement provides for an investment on the part of each company of $1 million either in capital stock and/or subordinated notes.

As I previous -- stated, it was subsequently determined that this investment must be increased to a million and a half on the part of each parent in either/or common stock and subordinated notes, the reason being that there was the minimum amount that any lender would accept as adequate [fol. 1788] equity to loan money to the Penn-Olin Chemical Company without guarantee on the part of the parents.

My answer to the question first is, initially, yes, they considered $1 million, but as the project developed they determined it would have to be a million and a half dollars.

By Mr. Copley:

Q. Then one million and a half dollars became Pennsalt's capital contribution to Penn-Olin?

A. That was anticipated to be their capital contribution.

Q. What has their capital contribution been to date? Just approximately.

A. As I recall the last balance sheet, it was in excess of $2 million.

Q. Is there a mechanical procedure for issuing stock in Penn-Olin Chemical Company? If so, would you describe it, please?

A. The procedure was that shares of stock would be issued to each company with a par value of one dollar and a stated value of $1,000 as called for by the treasurer, supported by expenditures. In other words, to cover expenditures for construction of the plant.

Q. Is that the procedure under which the company has been operating to date?

[fol. 1789] A. Actually in essence it is the procedure with the exception that the stock has not been issued other than the initial one share to each company.

Q. Of the approximately $2 million which Pennsalt has invested in Penn-Olin, how much of that money was in payment of stock?

A. As I previously stated, only one share has been issued, so factually only $1,000, but in terms of our attitude towards it, it would be an equivalent number of shares based on that ratio, a share of stock per $1,000 of investment.

Q. Is it then Pennsalt's attitude that all of the shares of stock have been paid for?

A. Mr. Copley, the problem here, as I'm sure you can appreciate, as soon as Penn-Olin was faced with this suit it was impossible to achieve financing on this basis which Pennsalt demanded. In other words, that the debt not be secured. I think you can appreciate a banker is not going

to loan money to a company that has an anti-trust suit on its hands.

Now to get back to your question, is it anticipated that shares will be issued for this investment which is now in excess of $2 million, my answer is "no".

Q. That is your attitude at this time?

A. Yes, sir.

[fol. 1790] Q. Why is that your attitude at this time?

A. Our fundamental basis in going into this project was to limit the amount of capital invested to the highest degree possible. As you have already developed it; we initially were thinking in terms of a million dollars. It then became necessary to increase it to a million and a half and to achieve financing on the basis which was previously stated. We are sure, or we are reasonably sure that that can be achieved once this suit is released.

Q. Are you speaking of the outside financing?

A. Yes.

Q. If we may concern ourselves solely with internal financing, I will ask you the question why was not the stock issued?

A. Oh, there is nothing peculiar about the lack of issuance of the stock. The one share was issued to each company at the time of incorporation. The next call for stock, my recollection is, was in November of last year or October of last year, October or November of 1960. I can't pinpoint the first date. As I think you can appreciate during this period these various agreements were being drawn up. One area where there was some discussion was the transfer of land, land owned by Pennsalt within Pennsalt's plant at Calvert City, Kentucky, to Penn-Olin on which Penn-Olin was going to construct a plant. The difference of opinion [fol. 1791] was a very small one, it was purely related to means of ingress, egress and the reservation of additional land should it be necessary.

Q. When did the dispute about the land arise?

A. I didn't say it was a dispute, I said it was a disagreement. It occurred, I believe, sometime in the fall. It was just a question of the size of space to be allocated. I don't know for a fact but I suspect a logical move on the part of

our partner was, well, let's get this settled before we issue any more stock. The issuance of the stock was originated, as normally, by the secretary of Penn-Olin. It neither disturbed us or disturbed Olin because we were satisfied that this would be worked out and I believe it has since been worked out, I don't know as a matter of fact, so the stock wasn't issued. Capital was paid in without the stock being issued, that was all.

Then it became more and more academic because we couldn't get financing. We knew that in the interim and just put our own money into the situation.

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[fol. 1792] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 397

Philadelphia, Pa.

EXCERPTS FROM ORAL DEPOSITION OF GEORGE T. COLLINS, TAKEN SEPTEMBER 27, 1961

* * * * * * *

[fol. 1793] GEORGE T. COLLINS, having been duly sworn, was examined and testified as follows:

By Mr. Freed:

Q. Mr. Collins, what is your position with Pennsalt?

A. I am manager of the International Division.

Q. And what was the postion you held before your present one?

A. Assistant to the president.

Q. Perhaps for the record I should ask you if you would state your full name and home address.

A. George T. Collins, 413 Miller's Lane, Wynnewood, Pennsylvania.

Q. From when to when were you assistant to the president?

A. Well, let's see. I got into my present job in September, [fol. 1794] 1956. When I became assistant to the president, let me think.

Do you remember when Mr. Beitzel became president?

Mr. DeLone: I think that's the same time Mr. Drake became executive vice-president, and that is February of 1955, if that is what we are talking about.

The Witness: Oh, no. Beitzel was president for three or four years.

Mr. DeLone: I am sorry.

The Witness: Drake was president for——

Mr. DeLone: Drake became president in 1955.

The Witness: So it must have been about four years before that, so it would be '51 or '52. I'd say in there.

By Mr. Freed:

Q. So from 1951 to 1956 you were assistant to the president and that term of office included the time when both Mr. Drake and his predecessor were president?

A. Yes, yes.

Q. During the time that you were assistant to the president, what was the extent of your responsibilities or duties concerning sodium chlorate?

. . . . . .

[fol. 1795] The Witness: Well, one of the functions of my job as assistant to the president was to periodically prepare what you would call technical and economic evaluations of investment possibilities; and in that period of time, on several occasions, we considered and reconsidered the possibility of a sodium chlorate plant in the eastern part of the United States.

So that there were several times, I would say, during the period when I was assistant to the president, that I put together such studies, which meant collecting information from within the company, just to assemble it in one place where the president and the management could look at the figures on return on investment.

By Mr. Freed:

Q. Do you recall when it was that you first had any [fol. 1796] conversations with personnel from Olin Mathieson concerning sodium chlorate?

A. Yes. There was a meeting—I don't know, I can't give you the exact time. It was in the fall of '56.

Q. Can you tell us where that meeting took place?

A. At the Philadelphia Airport.

Q. And how did it come about?

A. I don't recall whether I was asked by Mr. Land or Mr. Grogan to attend this meeting, but it was at the request of either one of those gentlemen.

Q. And with whom did you meet?

A. Mr. Logan and Mr. Grogan, George Grogan.

Q. Prior to the meeting, what instructions were given to you by Mr. Grogan or Mr. Land concerning the purpose of the meeting and your presence there?

A. The reason I was asked to attend was because I had previously put together figures on sodium chlorate, and my purpose there was to review our findings as far as the profitableness or the return on investment on the sodium-chlorate type operation.

Q. Can you describe for us the discussion and the course of events that went on at this meeting with Mr. Logan and Mr. Grogan?

A. Essentially, it involved a discussion of what our ex-
[fol. 1797] perience had been in looking at this type of investment, namely, that it was a very-low-rate-of-return type project. Therefore, we had looked at it a number of different times in the course of years. We had never been able to justify it as an investment for the company to make.

As I recall, Mr. Logan confirmed that this was also their experience—sodium chlorate was a very-poor-rate-of-return project.

There was also a discussion then of the possibility that at one of their plants (I believe it was Lake Charles, if I remember correctly) conceivably they would have excess power, excess steam, services, et cetera, where such a unit could be put in—not on a grand scale like you would if you were starting from scratch and building a new plant, but sort of a makeshift-type operation, making use of excess steam and power which presumably could be made available at low cost; and perhaps this combination, this situation, could result in their being able to produce this at a lower cost figure and a lower investment figure than the situation that we had each looked at individually in terms of a new site and a brand-new plant.

It was left that he would investigate the further possibility. This was essentially the discussion or the gist of the discussion that we had.

[fol. 1798] Q. The meeting concluded with Mr. Logan undertaking to take another look at Lake Charles?

A. On the possibility of this makeshift-type plant, making use of the plant there.

Q. You made reference to the fact that Olin had other facilities at Lake Charles, whereas the sites which each company had looked at before had been new sites; is that correct?

A. Well, by other facilities I meant excess power, excess steam beyond their needs at that location.

Whereas, for example, Calvert City, the site that we normally looked at in our studies would involve increasing or adding steam facilities, et cetera.

* * * * * * *

[fol. 1799] Q. Do you recall at that time what the best return on investment projected by Pennsalt was?

A. Our return figure was around 6 per cent.

Q. And was that before or after taxes?

A. That was before taxes.

Q. And what had Mr. Logan's findings been?

A. I can't recall the exact number, but it was in the same order of magnitude.

Q. As at the date of this meeting, what was the size plant that Pennsalt had figured on?

A. 12,000 tons.

Q. And did Mr. Logan mention what size plant Olin had been thinking in terms of?

A. I don't recall.

Q. Was it approximately the same?

A. I think they were a comparable type, yes.

Q. How did the meeting end? What took place next?

A. Well, as I mentioned previously, Mr. Logan was going to investigate the possibility of putting in this makeshift-type unit at their Lake Charles plant.

Q. And was Pennsalt to participate in the investigation of that plant or in the possible financing of it?

A. There was no discussion I recall—first of all, there was no discussion——

[fol. 1800] You mean participation in the study?

Q. Participation either in the study or in any project that might eventuate from the study.

A. There was no discussion, as I recall, participation in the study.

I think the original meeting was to consider whether there was a possibility of doing anything jointly; but certainly we had no intention of doing it ourselves with this poor return; but there was no discussion of financing.

Q. Was Mr. Logan to report back to you?

A. Yes—not to me. He was to report back. I don't know whom he reported back to ultimately.

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[fol. 1801] Q. Did you ever follow up or learn in any way what became of the discussions and the plans that had been discussed in your meeting with Mr. Logan?

A. I just recall—I can't even say if he told me or how I learned of it—that the specific thing we talked about was makeshift. The thing was not feasible.

Why, I don't know the details.

Q. When you refer to a makeshift arrangement are you referring to something different than the building of a plant adjacent to an existing plant?

A. Yes. This would involve using an existing building, perhaps, putting as many cells as you could get into that particular building; or it involved using the incremental or excess steam or power, and this is what I mean by makeshift versus going out and building a brand-new building with all the attendant services that are required to operate it.

This was to try to fit it in, as you best might, into an existing unit.

Q. Can you tell us, if you know, why it was that Olin needed or wanted Pennsalt or Pennsalt's interest in undertaking to explore a sodium-chlorate plant at Lake Charles? What would Pennsalt's contribution or role in such a plant be?

[fol. 1802] Mr. DeLone: Would you repeat that question to me, please?

(The reporter read the pending question as follows:

"Q. Can you tell us, if you know, why it was that Olin needed or wanted Pennsalt or Pennsalt's interest in undertaking to explore a sodium-chlorate plant at Lake Charles? What would Pennsalt's contribution or role in such a plant be?")

Mr. DeLone: Do you mean as communicated to him by Mr. Logan?

Mr. Freed: Yes.

Mr. DeLone: At this meeting?

Mr. Freed: Yes.

The Witness: There wasn't any preconceived idea on this at all. This was merely something that came up as a suggestion in our conversation.

In other words, we didn't go to this meeting to promote or look at a makeshift operation.

As far as I know, neither did they come to the meeting with this idea in mind. This is something that popped up in the discussion.

By Mr. Freed:

Q. As I understand your testimony, the concern of both [fol. 1803] companies prior to this meeting was with the factor of return on investment in an eastern sodium-chlorate plant; is that correct?

A. You say that this was the purpose of the meeting?

Q. As I understand your testimony, the exchange of views which took place at this meeting indicated that both Pennsalt and Olin had found, in their individual consideration of an eastern sodium-chlorate plant, that the return on investment was poor; is that correct?

A. That's right.

Q. Was that the common ground on which the meeting was held, at which the discussions took place?

A. I would say yes, certainly. It was common ground in that we had both made these studies and both found it to be a poor investment.

Q. Was the purpose of the meeting to see whether some kind of joint venture could overcome the poor return on investment that each company had ascertained or projected individually?

A. This was certainly a consideration, yes, sir.

. . . . . .

[fol. 1804] By Mr. Freed:

Q. On the basis of Mr. DeLone's statement, can you tell us what change in the return-on-investment outlook was contemplated or hoped for as a result of the matters discussed at your meeting?

A. I don't recall any specific discussion on that point. Anything dealing with the evaluation of investments, no, sir.

However, and we always—we are not always, but in many cases, we have always looked at the possibility of doing projects jointly, using borrowed money, because that would increase the rate of return on the equity. This is a standard, [fol. 1805] normal consideration.

Now, if you should borrow the money yourself this goes on your balance sheet and you are reporting to your shareowners that you have a full investment.

. . . . . .

[fol. 1806] Q. Was there any discussion at the meeting with Mr. Logan and Mr. Grogan of a joint venture?

A. I would say, well, certainly, the idea of the meeting was to exchange information on how we could put together a sodium-chlorate plant, what we thought of such an investment, with the thought in mind that perhaps there was some basic that together, if we did go together, this could be more profitable for both of us.

There was no preconceived idea as to how this could be [fol. 1807] accomplished, what our participation might be, or what their participation might be, or what have you.

Q. The document to which you referred earlier and which was discussed during the course of Mr. Grogan's deposition yesterday is a memorandum from Mr. Land to Mr. Drake dated December 27, 1956, and was previously identified as Plaintiff's Drake Exhibit 13.

I show you a copy of this document, one sentence of which is underlined, and ask you if you would examine it in its entirety and state whether it adds anything to the testimony you have already given as to the matters discussed or the nature of the matters discussed at the meeting.

. . . . . .

[fol. 1808] The Witness: I would say no.

By Mr. Freed:

Q. There is a reference in this sentence as follows:

"... that their cost figures, both capital and manufacturing, were surprisingly close to ours."

Do you recall the manner in which you and Mr. Grogan and Mr. Logan compared the finding that each company had made individually prior to the meeting on the subject matter of costs?

A. We each stated what our estimated investment figure would be for such a plant and we each stated what our manufacturing costs would be, based on assumed power costs and bulk costs, which were the major factor of costs in chlorate.

Q. Do you recall whether each company furnished the other with any particular documents relating to prior studies?

A. No. As far as I know, there was no exchange of documents.

Q. The exchange of information was entirely oral?

A. Yes.

Q. Was there any discussion at this meeting of the mar-[fol. 1809] ket or markets to be served by a sodium-chlorate plant in the East?

A. None that I can recall.

Q. Was there any——

A. Other than the fact of our own forecast, our own estimate, based on figures which our Sales Department thought they could sell.

Q. Was there any discussion of the states or areas in which the sodium chlorate that had been considered by either company prior to the meeting would be sold? Did you exchange information on the subject——

A. No.

Q. —of where the market was?

A. No.

Q. Was there any discussion of exploring the possibility of a plant that would manufacture something other than sodium chlorate?

A. No.

Q. Other than the question of costs and return on in-

vestment, were there any other elements of entry into the sodium-chlorate business that were discussed in the meeting?

A. (No response.)

Q. Was it completely a financial discussion of elements of cost or——

A. Completely a discussion of the elements of cost.

. . . . . .

[fol. 1810] By Mr. Freed:

Q. Did he say anything about Olin's efforts to develop production technology?

A. None that I can recall.

Q. Did he say anything about Olin's chlorine-dioxide process?

A. No. This was not part of the discussion at all.

[fol. 1811] Q. Did he say anything about why Olin was interested in entering this business?

A. I don't know that he specifically stated this, but it would be obvious to anybody who knew their particular situation, which everybody knew—that they had chlorine dioxide and chlorate was an ingredient or a product which was used to make the chlorine dioxide.

Also they are in the soda business, chlorine and caustic, so this would be a perfectly logical thing for them to continue.

. . . . . .

[fol. 1812] Q. Do you recall the amount or the approximate amount of the capital-cost figures that were discussed at your meeting?

A. Within the range of $4,000,000 to $5,000,000.

Q. And that was the same for both companies, as you recall the discussion?

A. Yes. Our figures were quite close.

. . . . . .

[fol. 1813] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 398

Wilmington, Delaware.

EXCERPTS FROM DEPOSITION OF JAMES MCWHIRTER, TAKEN ON MAY 12, 1961

* * * * * * * *

[fol. 1814] JAMES MCWHIRTER, a witness called by the plaintiff, being first duly sworn, testified as follows:

Direct examination.

By Mr. Freed:

Q. Are you an employee of Pennsalt Chemicals Corporation?

A. I am.

Q. Would you tell us what your present position with that company is?

A. General Manager, Industrial Division, East.

Q. How long have you held the position of General Manager?

A. Since January of 1960.

[fol. 1815] Q. Would you summarize for the record your prior history with Pennsalt?

A. With Pennsalt?

Q. Yes, sir.

A. I came to work for Pennsalt in July of 1945, with the intention of becoming plant manager at the Natrona, Pennsylvania plant; spent about six months in the central office in Philadelphia to became familiar with company policies, procedures, and so forth, transferred to Natrona on January 1, 1946. I served as plant manager there for several years.

In 1948, about January of 1948, we were assigned the responsibility of coordinating all activities in construction of a plant at our Calvert City, Kentucky, site. When the plant was completed we started operations in July, 1949. I then became plant manager of the plant at Calvert.

About 1951, I was assigned the responsibility of area manager of the south and southeastern plants.

In September, 1952, I was transferred to Wyandotte as plant manager.

Early in 1955, I was transferred to Philadelphia as manager of manufacturing.

In August of 1958, I was assigned the responsibility of personnel director for the entire corporation.

In January, 1960, I became General Manager of Industrial [fol. 1816] Division, East.

I also serve as a member of the Pension Administrative Committee, also a trustee of the Pennsalt Foundation which handles the corporate donations and contributions and administers this program.

Q. Sir, would you now state for the record your present affiliation with the Penn-Olin Chemical Company?

A. President of Penn-Olin Chemical Company.

Q. How long have you held that office?

A. I was assigned the responsibility back on February 11 or 12—I forget the exact date—when there was a meeting between the two companies and they decided to enter this venture.

Mr. DeLone: What year?

The Witness: I think officially I was probably not President until the directors' meeting which came sometime later. But our President of Pennsalt assigned me to this position, after agreement with the Olin people, and this was ratified at a subsequent directors' meeting.

By Mr. Freed:

Q. And that was in 1960?

A. 1960.

. . . . . .

[fol. 1817] By Mr. Freed:

Q. Mr. McWhirter, do you know when sales for the account of Penn-Olin Chemical Company were first solicited?

A. Effective January 1, 1961, for the account of Penn-Olin.

Q. I direct your attention to the word "solicited," and will ask again whether you know when Penn-Olin, or anyone acting on its behalf, first solicited business, sodium chlorate business, on behalf of Penn-Olin?

A. For Penn-Olin, it does not become effective until January 1, and any solicitation or cultivating customers and so forth, I have no way of knowing that.

Q. The responsibility for sales by Penn-Olin belongs to Olin Mathieson; is that correct?

[fol. 1818] A. That is correct.

Q. Does Olin Mathieson report to you or does any Olin representative in Penn-Olin Chemical Company report to you on the progress of sales?

A. The provisions were that when the Penn-Olin plant is in operation, Penn-Olin will give a complete accounting, back, of the sales.

Mr. DeLone: Penn-Olin?

A. (continued) Olin would give a complete accounting of the sales back.

By Mr. Freed:

* * * * * * *

Q. Who is in charge of sales for Penn-Olin Chemical Company?

A. Mr. Johns is directly in charge. He works for Mr. Logan, Vice-President, obviously, but Mr. Johns' primary responsibility is sales.

Q. Has Penn-Olin made any sales as of this date?

A. For the account of Penn-Olin sales have been made.

Q. And when were the first sales made for the account of Penn-Olin?

A. I can't tell you this date, sometime in the first quarter [fol. 1819] of this year. They have already sold material that will be for the account of Penn-Olin.

Mr. DeLone: What do you mean when you say "they"?

A. (continued) Olin has made sales for the account of Penn-Olin.

* * * * * * *

[fol. 1820] By Mr. Freed:

Q. Mr. McWhirter, what was the return on investment predicted for a Calvert City sodium chlorate operation prior to Pennsalt's embarking on a joint venture with Olin-Mathieson?

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[fol. 1821] A. Generally speaking, it is pretty obvious from all of these studies that the rate of return was uniformly low. You would say that there was some optimistic and there were some on the low side. My recollection is that it was between 12 and 15 per cent. To get anything like a 19 or 20 per cent return, as we are talking about in the Penn-Olin venture here, you have to deal with substantially greater volume plants. Our sales people were never of the opinion that they could market anything like 25,000 tons of chlorate per year.

And finally this is one of the major factors that makes this Penn-Olin venture look good. It is the volume of operation.

By Mr. Freed:

Q. Mr. McWhirter, would you tell us what the difficulty [fol. 1822] was that Pennsalt anticipated in selling sodium chlorate in the east on its own?

A. Primarily that we have a very, very meager sales force in the south, southeast, to begin with; and, two, we don't have any strength in the pulp and paper industry in the southeast.

Q. How meager is your sales force in the southeast? Would you describe your sales force in terms of size and basis of operation in the southeast?

A. I told you about the original sales force, that we had something like I think 115 or 120 people total, of which maybe 45 to 50 were engaged in direct selling, and product managers, and so forth, technical service.

The south has not been a particularly profitable area from our standpoint. As a matter of fact, we did not have an office but we had a man who used his home as an office in the area. Within the past six months we have shared

an office with a specialty division at Atlanta. We had about two people out there, Industrial Division.

The sales manager, the regional sales manager, died two weeks ago, and he is the only person who had any contacts whatsoever, and we were very meager even before this in the southeast.

Consequently we did not and do not visualize any success [fol. 1823] in trying to move 25,000 tons, or anything like this, into the pulp and paper industry.

Q. Did Pennsalt make any efforts to cultivate the southeastern market since you have been with the company, in any products now?

A. Yes, but to answer your question I think we must recognize that the products we would be selling to the pulp and paper are chlorine, caustic, and so forth, and that with the location of our plants does not make us competitive with people who have plants in Mississippi and Louisiana, and so forth. Consequently, we have not had any appreciable sales force in the south and southeast.

Q. Is the Calvert City plant of Pennsalt not well located for the pulp and paper industry of the southeast?

A. This is true.

Q. It is not well located?

A. It is not well located for this purpose at all.

Q. Is it well located as a base of operations for a sodium chlorate plant?

A. Not as favorably located as our competitors' plants.

Q. Why was it chosen?

A. For other factors. We have power there, cheap power. We already had some off-site facilities, pumping stations. We could minimize the capital investment required, and we [fol. 1824] had work forces and supervision, so that we could make available necessary help, but it was not selected solely for location, believe me.

Q. Were there any other sites that you considered in the southeast that would have been more desirable from a marketing point of view?

A. I believe I saw mentioned in the files that we had looked at Brunswick in Georgia at one time.

Q. Why was Brunswick rejected?

A. I believe the power costs were excessive.

Q. Was any estimate made of the relationship between high power costs and better location at Brunswick?

A. I am sure that complete studies were run and a decision was that we did not want to build in the area at that time.

Q. Then from the point of view of Pennsalt Chemicals Corporation, Calvert City was the best location available?

A. This is correct, considering capital investment and operating costs and all other factors.

Q. Has any effort been made to sell the chlorine and caustic output of the Calvert City plant to the southeast?

A. No intensive effort has been made in the past. We are making more of an effort now. This is why we opened a regional office out there and have this one sales manager whom I mentioned has been deceased a month or so ago. [fol. 1825] But we are not at all strong sales-wise in the south or southeast.

Q. Do you have present plans to expand your sales force for caustic soda and chlorine to paper companies from Calvert City?

A. We would hope to do this—not necessarily from Calvert City, but we would hope to get an entree so we could sell chlorine to the pulp and paper industry in the southeast.

Q. How do you propose to establish that entree?

A. Just by getting more people in the field and trying to develop our technical service to the point where the people are recognized by the industry and by the trade.

Q. And is your division of Pennsalt presently engaged in making such effort?

A. We are recruiting personnel for this purpose.

Q. And it is your purpose to expand the sales of these two chemicals to the southeastern pulp and paper companies?

A. That is right.

Q. Can you tell us why Pennsalt's plans in this regard, with regard to chlorine and caustic soda, do not also permit it to make sales of sodium chlorate?

A. We would have the same problem except in spades. We do have people in the Industrial Division East who are familiar with chlorine and all the technical aspects of it.

[fol. 1826] To try to get into the pulp and paper with chlorate we have absolutely nothing to offer, no technical service people; we have nothing we can offer that our competitors cannot offer to a greater degree.

Q. Does Pennsalt Chemicals Corporation have as much know-how in the field of sodium chlorate as it does in the field of caustic and chlorine?

A. The answer would be no, not as much of it.

Q. What are the facilities that you have for marketing sodium chlorate in the west from your Portland plant?

A. You say facilities?

Q. What are the selling facilities?

A. We have several exceedingly competent technical service people out there who have been of major assistance in getting entree into the pulp and paper mills, and I would say this is the largest single factor.

Q. And is the technology and experience that those people have on the West Coast capable of being transferred or taught to the sales force of Pennsalt in the east?

A. The answer to that has to be yes, with time.

Q. Is there a difference in the problem of expanding the marketing of chlorine and caustic soda in the southeast and of marketing sodium chlorate in the southeast for Pennsalt?

A. Yes.

[fol. 1827] Q. Would you tell us what that difference is?

A. Our people in the east have been marketing chlorine for many, many years. They are trained in all phases of chlorine manufacture, application and use. They are familiar with containers. They can give good technical service in chlorine.

Q. When you say "our people" do you mean that there are existing personnel who in Pennsalt —

A. Do this type of work?

Q. —who will form the sales force in the southeast for selling chlorine and caustic soda, or will there be a new sales force recruited for that purpose?

A. We will get additional personnel. They will not be assigned specifically to this area, but we will bring more people into the technical service group to support and back up the field salesmen.

Q. Is there any reason why the know-how of the sales

force on the West Coast cannot also be brought to this area for the same purpose?

A. Except for the fact that you can't scatter two people over the whole United States. Equally important with the technical knowledge and know-how is the acceptance and recognition in the industry, and you don't acquire this overnight.

. . . . . .

[fol. 1828] By Mr. Freed:

Q. It is my understanding that prior to the Penn-Olin venture, Pennsalt contemplated at one time a sodium chlorate operation at Calvert City in the range of 10 to 15,000 tons per year. This venture and several other proposals like it were rejected. Is that true?

A. That is true.

Q. I would like to know whether the rejection of the various Pennsalt proposals, Pennsalt without a partner, was predicated on the belief that Pennsalt could not make a profit on a Calvert City sodium chlorate operation?

A. It was predicated on the conclusion that we could not get the return on our investment established by our guide rules. There is a difference there from profit.

Q. Can you explain for the record the difference between the return on investment and the profit from a venture?

A. You may get a profit from the venture and still not be interested in it because the profit might be equivalent to 2% of the total capital invested. This does not meet our requirements so I don't believe Pennsalt ever concluded that they couldn't get any kind of a return on their investment. They could not get an adequate return by their [fol. 1829] standards.

Q. Is it correct, then, to say, dealing exclusively with profit, that Pennsalt made no determination that it could not profitably sell sodium chlorate at Calvert City; would that be correct, dealing only with profitable sales?

A. What is your definition of "profitable sales"?

Q. Let's define it, for the purposes of this question, that profit is a return greater than the cost of sales.

A. We did not determine this.

Q. You did not determine that that would be impossible?

A. I will supplement this by adding at the present time we feel the break-even point, which I think you are referring to now, where the income is equal to the expenditures, requires operation at about 14,500 tons per year.

Q. And would you explain what you mean by a break-even point of 14,500 tons per year?

A. Yes. It is the same frame of reference as your explanation of profit meant where the income revenue exceeded the expenditures.

[fol. 1830] Q. Are you stating, sir, that if a plant was constructed for the purpose of selling less than 14,500 tons per year that that plant could not operate at a profit?

A. I am saying this chlorate plant that we are building cannot operate profitably under a level of 14,500 tons per year.

Q. You are now referring to the Penn-Olin plant which is under construction?

A. That is, not with the investment we have in this particular plant.

Q. I would like to return your attention to the plant contemplated by Pennsalt when it was investigating the possibilities of manufacturing sodium chlorate by itself at Calvert City. My question is Did Pennsalt determine that it was unable to construct a plant that would operate profitably at Calvert City to manufacture sodium chlorate?

A. It did not determine that it could not operate profitably in the sense that you have defined "profitably".

Q. Did it determine that it could not receive any return on investment?

A. If it received a return then it is operating, by your definition, profitably.

Q. Then our definitions are merging.

Then to return to a statement you made this morning, [fol. 1831] would it be correct to say that Pennsalt determined that the best it could do on its own was to receive a return on investment in the range of 10 to 15 per cent, but no greater? Would that be correct?

A. Based on the plants that were under discussion at that time.

Mr. DeLone: Now we are talking about a before-tax return?

The Witness: I am.

Mr. DeLone: Are we, in that 10 or 15 per cent?

By Mr. Freed:

Q. I assume that all of the return upon investment figures that we have been discussing today are return on investment before taxes?

A. That is correct.

Q. So we are using the same base throughout?

A. That is correct.

Q. Now, directing your attention to the second obstacle to Pennsalt's venture on its own, namely, financing the plant, securing the money, did Pennsalt make any effort to secure financing, to secure money, from a bank or other lending institution for the purpose of a lone venture?

Mr. DeLone: I think there has been some misunderstanding and I object to the question if you are construing his [fol. 1832] earlier testimony as testimony that Pennsalt said it could not get a loan, because I did not understand the witness to have ever so testified.

By Mr. Freed:

Q. Mr. McWhirter, will you state whether Pennsalt ever made efforts to borrow money from a bank or other lending institution for the purpose of financing a sodium chlorate plant at Calvert City?

A. Not to the best of my knowledge.

* * * * * * *

[fol. 1833] Q. And would you say that the statement that Pennsalt enjoys a unique combination of assets which would facilitate entry into the sodium chlorate business, is that a true statement or a false statement?

A. I don't think it is black and white. I do think we have the technology and know-how. If you are talking about a limited ton-age, and if the return on investment could be realized from a limited ton-age, let's say 10,000 a year, I think we would enjoy these unique assets. This is all qualitative, nothing quantitative about these here.

Q. Do you know whether these particular statements

formed the basis for Pennsalt's rejection of a sodium chlorate venture in 1957, whether these particular statements were considered by the management of the company to be erroneous and misleading?

A. I am sure they were not substantiated by the projected return on investment; otherwise we would have been in chlorates.

. . . . . .

[fol. 1834] Cross-examination.

By Mr. DeLone:

. . . . . .

[fol. 1835] Q. With reference to the sales of sodium chlorate there was some reference to assuming that within a year you could assemble a sales force to sell sodium chlorate in the southeast, then how long would it take to really get going? Can you give us any estimate of how long it will take to assemble and train a sales force before the sales effort really begins—before a sales effort could begin on sodium chlorate?

A. Well, to begin with, I think it is going to take us six [fol. 1836] months to a year to recruit the type of people we will need for this job, and then the subsequent training, technological period, and so forth, is going to be at least another two to three years; and before we get our feet in the door, get admitted to the pulp and paper mills, you are talking about somewhere between five and ten years. For pulp and paper a minimum of five.

. . . . . .

[fol. 1837] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 399

Philadelphia, Pa.

EXCERPTS FROM PRETRIAL ORAL EXAMINATION OF GEORGE DAVIDSON GROGAN ON TUESDAY, SEPTEMBER 26, 1961

* * * * * * *

[fol. 1838] GEORGE DAVIDSON GROGAN, having been duly sworn, was examined and testified as follows:

By Mr. Freed:

Q. Mr. Grogan, would you state your name and home address for the record?

A. George Davidson Grogan, 46 Steeplechase Road, Devon, Pennsylvania.

Q. And what is your position with the defendant, Pennsalt Chemicals Corporation?

A. I am the general sales manager in the Industrial Division, Industrial Chemicals Division.

(Discussion off the record.)

By Mr. Freed:

Q. How long have you held the position of general sales [fol. 1839] manager?

A. Oh, I guess two years.

Q. And prior to that time, what was your position?

A. Manager of chemical sales.

Q. And for how long did you hold that position?

A. Well, I don't recall exactly, I guess maybe a couple years.

Q. Can you distinguish for us the two positions of manager, chemical sales and general sales manager?

A. Distinguish between them?

Q. In terms of the duties, responsibilities that you had.

A. Well, briefly, as manager of chemical sales, I had charge solely of the field sales group, that is to say, the regional managers and the salesmen. As general sales

manager, I have charge not only of those but a group, a couple of—two other sales managers and two product managers and, oh, product-development groups.

. . . . . .

[fol. 1840] Q. Mr. Grogan, when was the first time that you had any conversations with representatives of Olin Mathieson on the subject of sodium chlorate?

A. I don't remember the date.

Q. Do you remember the circumstances?

A. Not too well. I can't remember where it happened or [fol. 1841] anything else. I remember that I did, but——

Q. Can you recall the person or persons with whom you spoke?

A. John Logan.

Q. And can you recall what the occasion of your conversation was?

A. What the occasion?

Q. Can you recall what caused the conversation?

A. No, I don't.

Q. Can you recall what the conversation was?

A. Well, in a general sort of way. It was whether they would have any interest in putting up a sodium-chlorate plant with us. We couldn't—apparently couldn't make the thing pay ourselves and would they be interested at all in it?

Q. And what was Mr. Logan's response?

A. This is again from a faulty memory but as I recall, his comments were that they had considered sodium chlorate several times themselves and they had had the same problem, that they just—it just didn't look like too attractive a proposition by themselves, so he thought there might be some basis of our putting up a plant together.

Q. Do you recall Mr. Logan giving any reasons why Olin did not view the sodium-chlorate project as attractive by itself?

A. Well, I guess it was the same, I imagine. I don't re- [fol. 1842] call him stating it specifically, but I imagine it would be the same reason that we had had trouble with it, the return on the investment was just—wasn't too satisfactory.

. . . . . .

[fol. 1843] By Mr. Freed:

Q. You have stated, I believe, sir, that you continually harped on the subject of Pennsalt selling sodium chlorate but that Pennsalt did not put up a plant and my question is, can you tell us the reasons, if any, which were made known to you why Pennsalt itself did not proceed to put up a plant and let you do the selling for it?

[fol. 1844] A. The return on the investment was not satisfactory.

Q. And was that the only reason that was given?

A. Yes, that was the only thing, to the best of my knowledge, was ever holding it up.

Q. What was the basis as of February 17, 1960, on which you based your view that "We could do a good job" selling sodium chlorate?

A. Well, I don't know that I had any specific reason for saying that other than I felt all along that my sales organization could sell sodium chlorate and could do a good job of it.

Q. Was there any question raised as of the date of this memorandum of the adequacy or ability of your sales organization to market sodium chlorate?

A. No, the only reason I put that in there at all was the —naturally, when they see—when the salesmen see a new plant like this coming on, they think there is something additional for us to sell, but they can't sell; somebody else is going to sell it, so, naturally they would be a little disappointed. That is more or less window dressing, just to kind of keep the sales department calmed down and not having them all running around screaming because they don't get any new products.

Q. Can you tell us, sir, what steps you would have taken had the responsibility for selling the output of the Penn-

[fol. 1845] Olin plant been assigned to your sales force?

A. Well, it would have been a fairly—been a sizable project, no doubt about that. It would have required additional salesmen, additional technical-service people, all that sort of thing, and, of course, I had never committed myself or committed the sales organization to handle any kind of tonnage like they talk about here.

[fol. 1846] Q. Could you tell us now on the basis of your general chemical experience and knowledge of the pulp and paper industry approximately how many additional salesmen you would need to enter the sale of sodium chlorate in the East?

Mr. De Lone: You mean from a plant located somewhere in the Southeast and to move how much sodium chlorate? It isn't included in the question yet.

By Mr. Freed:

Q. From a plant located in the Southeast and, in so far as the amount of sodium chlorate is concerned, include in your answer the estimate which you made concerning the number of additional personnel needed to sell a given amount of sodium chlorate.

A. Well, of course, you have two entirely different problems to sell a thing like, say, five to seven thousand tons. The tonnage I had been talking about off and on in the past, that really wouldn't be too much of a problem. You can handle that, oh, I don't know, maybe one additional technical-service man, something like that. If you had to sell 25,000 tons, it would be a horse of an entirely different color.

Well, I kind of hate to make guesses like this because in the first place, I may be contradicting something I have [fol. 1847] said previously. I don't recall but just—if—to give you a guess right now, you would—I would say you would certainly need a couple salesmen, a couple men in technical service and maybe some laboratory personnel and a technical-service lab to back the thing up. I just don't—it is the kind of thing you can't put an exact answer to. You would kind of have to get into it how long it would take to sell 25,000 tons at that rate, I mean, with that sales force. I don't know.

Q. In terms of the 15,000-ton estimates which were made at various times prior to 1960, what would be the additional personnel that your organization would have required to sell that amount?

A. Well, you might want to start out with the same additional personnel I just finished talking about, but you would do it sooner. You would sell 15,000 tons sooner

than you would 25,000 tons. You could do it, actually, almost any way you want to, but the fewer personnel and the less laboratory work and technical-service work you put behind it, the longer it takes you to do it.

Q. Well, I believe that in a prior answer you stated a couple, which I take to mean two, extra sales people, two extra technical-service people and a laboratory. Now, that answer was with reference to a 25,000-ton plant. With [fol. 1848] reference to a 15,000-ton plant, do I understand correctly that your answer is the same?

A. Well, I would say—I said you could do it with a—you could put on those additional people and you would sell the 15,000 tons in a sooner—in a shorter period of time than the 25,000. Now, you could—actually, I could say—or you could have one guy and it might take him fifty years. Maybe he would never do it; I don't know. So you are dealing with an awful lot of variables and you just can't reduce it to anything other than a guess.

Q. Have you at any time up to the present date made any careful estimate concerning the number of additional personnel you would need to sell any amount of sodium chlorate in any specific amount?

A. As I say, I am sure I have. I don't recall just exactly what they were but in all this discussion on sodium chlorate, that sort of a thing would come up. I would say I could sell five to seven thousand tons and they will—a plant isn't sufficient unless maybe we make 15,000 tons. They would say, "What additionally do you need to sell that," so I am sure I made a number of estimates. As I say, they probably contradict one another.

Q. Do you recall whether any of your estimates were set forth in written reports?

[fol. 1849] A. I may have written them; I don't recall.

Q. You made reference to the possible need for a laboratory. Could you tell us if the sale of fifteen or twenty-five thousand tons of sodium chlorate would necessitate installing a laboratory?

A. Well, at one time we used to have fairly extensive laboratory facilities, kind of like a little pilot-plant sort of thing, on pulp bleaching and things of that nature. Now, you might need that kind of thing to sell this sodium chlorate. Certainly you need some laboratory facilities to

back up your technical-service personnel. They can't go out and handle all the problems that they run into right on the customer's premises.

Q. Do you have the basis for such a laboratory in your existing organization?

A. Not too much, no. I wouldn't say really at all. We have to start from scratch.

. . . . . .

[fol. 1850] Q. The last paragraph of Grogan Exhibit 7, which is your memorandum to all salesmen, refers to the following:

> "Even though this doesn't increase our sales op-
> [fol. 1851] portunity, it should materially strengthen the Industrial Chemicals Division and this obviously work for our benefit."

Could you explain your reference to "it should materially strengthen the Industrial Chemicals Division"; what do you mean by that?

A. Well, it just gives it another plant, a little larger organization, that sort of thing.

Q. What organization are you referring to?

A. Well, the actual plant that manufactures the sodium chlorate.

Q. Since that is a jointly-owned facility, how does that enhance the strength of the Industrial Chemicals Division in Pennsalt?

A. Well, I guess I overlooked the fact that it was a jointly-owned proposition. I was thinking primarily of it being a plant that we would own and give us just that additional production more—make more chemicals. The more chemicals we make, theoretically, at least, the stronger organization we have.

. . . . . .

[fol. 1852] Mr. Freed: I would like the reporter to mark as Plaintiff's Grogan Exhibit 8 a two-page document, the first of which is a memorandum from Mr. Grogan to Mr. McWhirter dated February 29, 1960, and the second page to be marked 8-B is a memo from Mr. McWhirter back to Mr. Grogan dated March 1, 1960.

(Memorandum dated February 29, 1960, from Mr. Grogan to Mr. McWhirter was marked Plaintiff's Grogan Exhibit 8-A for identification.)

(Memorandum dated March 1, 1960, from Mr. McWhirter to Mr. Grogan was marked Plaintiff's Grogan Exhibit 8-B for identification.)

A. Apparently I was under the impression we were going to make ammonium perchlorate at Calvert.

* * * * * * *

[fol. 1853] By Mr. Freed:

Q. Returning for a moment, sir, to Grogan Exhibit 7, the February 17th memorandum to salesmen, the first paragraph contains the statement:

> "Some of you will undoubtedly come across potential customers for sodium chlorate and we might as well tell them right from the start that Olin Mathieson will be handling the sales and we will handle the production."

Can you tell us the information or instructions which [fol. 1854] were given to you respecting the handling of the sodium-chlorate sales of Penn-Olin and their relationship to activities of your own sales force?

A. I don't remember that I was given any at all. I think I—what stirred this up, I just assumed that if Olin Mathieson was going to sell the stuff that any inquiries we would get we would turn over to them but I don't recall that I was specifically instructed to handle them that way.

Q. Have you at any time since the creation of Penn-Olin had any further instructions respecting the sale of sodium chlorate by the Pennsalt organization?

A. Well, only that the thing is kind of up in the air.

Q. At any time since Penn-Olin was created, has your sales organization engaged in the solicitation of sodium chlorate?

A. Not that I——

Mr. De Lone: What, for Penn-Olin?

A. You mean for ourselves?

By Mr. Freed:

Q. For anyone.

A. Not that I recall.

Q. Do you know, how the sales to Gulf States Paper Company in 1960 came about? Was that through any action of your own organization?

A. No, we had nothing to do with that. As I recall, the [fol. 1855] West Coast handled that entirely on their own.

Q. Are the sales to Buckeye still being handled by Pennsalt?

A. By myself, you mean?

Q. Yes, sir.

A. No, they, the West Coast, handles those now. We actually act as their contact, but the West Coast bills all the stuff.

Q. Do you know whether the Penn-Olin facility is going to take over furnishing sodium chlorate to Buckeye?

A. Well, I would assume. I don't know, no, I do not know. I would assume they would.

Q. Do you recall any conversations with Mr. Clem or anyone else in the Pennsalt organization familiar with the Penn-Olin project respecting the sale of sodium chlorate to customers other than the pulp and paper industry?

A. No, I don't.

Mr. Freed: I would like the reporter to mark as Plaintiff's Grogan Exhibit 9 a set of three documents. 9-A is a memorandum from Mr. Grogan to Mr. Clem dated March 23, 1960. 9-B is Mr. Clem's reply to Mr. Grogan dated March 25, 1960. And 9-C is Mr. Grogan's reply to Mr. Clem dated March 31, 1960, and after the reporter marks this document, I would appreciate it if you could tell us [fol. 1856] whether any further conversations respecting possible sale by Pennsalt of sodium chlorate to the textile industry took place where you were a party to such conversations.

(Memorandum dated March 23, 1960, from Mr. Grogan to Mr. Clem was marked Plaintiff's Grogan Exhibit 9-A for identification.)

(Memorandum dated March 25, 1960, from Mr. Clem to Mr. Grogan was marked Plaintiff's Grogan Exhibit 9-B for identification.)

(Memorandum dated March 31, 1960, from Mr. Grogan to Mr. Clem was marked Plaintiff's Grogan Exhibit 9-C for identification.)

A. Well, apparently I did talk to Clem about the use of sodium chlorate in textile bleaching and actually there have been additional conversations not necessarily with Clem but within my own organization with the idea of developing a process for using sodium chlorate in textile bleaching.

By Mr. Freed:

Q. And how far has consideration of that use of sodium chlorate progressed within your own organization?

A. Not too much. There again, the thing is kind of up in the air. We don't want to find that we are necessarily promoting a process that Olin Mathieson is going to go out and sell. Actually, there is a lot of work that has to be [fol. 1857] done on a thing like that. It is not something that will cook up in maybe six months or a year.

Q. Is this something which requires research and laboratory work?

A. It would, yes.

Q. Preliminary to any sales effort?

A. Yes.

Q. To your knowledge, is any sodium chlorate at the present time being sold for textile bleaching?

A. No, I don't believe it is.

Q. What is the status of plans or consideration within your own organization of undertaking a research project in connection with textile bleaching through the use of sodium chlorate?

A. Well, they are not very well defined right now. We actually are doing a little bit of work on it.

Q. By whom is the work being done?

A. Well, by one of our laboratories. We have, oh, what we call a use laboratory that handles—our basic problem is working with the users of organic chemicals but they are starting a little bit—to do a little bit of work on this, but we are certainly not going to pursue it too aggressively until the whole thing kind of settles down, until we kind of find out exactly where we stand.

Q. If the Penn-Olin project proceeds pursuant to the [fol. 1858] original agreements and despite this lawsuit, will you then go ahead with the textile-bleaching research?

A. I don't know, without knowing the arrangement, say, that Pennsalt has with Penn-Olin, I personally don't know whether we would want to do additional work on this or not. Now, if we, for instance, could get them to get Penn-Olin and let us sell the sodium chlorate into the textile field, then, of course, we would be perfectly willing to spend some time on it.

Q. Have you participated in any discussions directed at that possibility?

A. No, other than—well, you mean the possibility of our selling the chlorate to the textile field?

Q. Yes, sir.

A. Only within our own organization in discussing this particular process.

Q. Can you tell us when the work which is now being done in connection with textile bleaching and the use of sodium chlorate commenced?

A. Oh, I don't think it is more than, well, a couple or three months ago, I would say. Now, this correspondence goes back to 1960 but we weren't doing anything on it then.

Q. What was responsible for triggering the work that is now being done?

[fol. 1859] A. Why, some information we picked up from a chemist that works for the City of Philadelphia.

Q. To your knowledge, is any work on this process being done by or for the Western Division of Pennsalt?

A. No, I don't think they have been doing anything on that at all because there is really no textile industry out in their area to speak of.

Q. To your knowledge has any information about the possible use of sodium chlorate for textile bleaching been conveyed to or transmitted to Olin?

A. I don't believe it has, no.

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[fol. 1860] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 400

Tacoma, Washington.

EXCERPTS FROM DEPOSITION UPON ORAL EXAMINATION OF HUGH C. LAND TAKEN ON AUGUST 10, 1961

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[fol. 1861] HUGH C. LAND, being first duly sworn to testify the truth, the whole truth and nothing but the truth, deposed and said as follows:

Direct examination.

By Mr. Freed:

Q. Would you state your name and address for the record, sir?

A. Hugh C. Land, 10 Forest Glen, Tacoma 99.

Q. And what is your present employment, sir?

A. I am Group Vice President, Pennsalt Chemicals Corporation, in charge of two operating divisions headquartered in Tacoma, Washington.

Q. And those two divisions are what, sir?

A. The Agricultural Chemicals Division and Industrial [fol. 1862] Chemicals Division-West.

Q. When did you assume the office of Group Vice President, Mr. Land?

A. In February, 1960.

Q. And was it in February, 1960, that you moved to the west coast from the east?

A. It was perhaps March before I initially came to the west coast, and July before my family arrived. So somewhere in this period I officially moved. Mr. Shanaman, whom I replaced, retired in April, and so there was an overlap there of six or eight weeks from the time I was assigned and transferred here until he retired.

Q. Prior to assuming the office of Group Vice President, what was your position with Pennsalt?

A. General Manager of the Industrial Chemicals Division-East.

Q. And how long had you held that position?

A. From approximately the spring of 1955, until being transferred here.

Q. And what were the responsibilities of the head of the Industrial Chemicals Division-East?

A. Responsible for the manufacture and sale of the chemicals produced at Wyandotte, Michigan, Calvert City, Kentucky, Natrona, Pennsylvania, Houston, Texas, and sales of these chemicals into all but the eleven western states.

Q. And did your responsibilities include the sale of any [fol. 1863] products which were not manufactured in the states east of the Rocky Mountains?

A. Yes, there were a few.

Q. Would you state for us what those chemicals were?

A. Oh, I can't begin to give you the total. Some of these are resale. For instance, alum. We were purchasing from Allied and reselling in the group. This is typical of the type of product that we resold.

Q. Were you also responsible during this period for the sale of such sodium chlorate as Pennsalt sold in the east?

A. I am thinking about your question just a bit. Let me answer it in this fashion: I was responsible for the sale of the sodium chlorate that Pennsalt sold in the east. I don't want to infer that I had any responsibility for the material that was produced in Portland. I did not have any basic responsibility for moving production from the Portland, Oregon plant. To the extent that I committed for materials in the east, certainly I had responsibility for its sale.

* * * * * * *

[fol. 1864] By Mr. Freed:

Q. Was calcium hypochlorite also under your direction and authority, sir?

A. Calcium hypochlorite was one of these products transferred between divisions. During this period I had responsibility for its production. The responsibility for

its sales was in the Chemicals Specialties Division under another General Manager.

* * * * * * *

[fol. 1865] By Mr. Freed:

Q. Prior to the year 1959, before Mr. Shanaman made a commitment to Olin to furnish up to two thousand tons of sodium chlorate, was an offer made to you to make available sodium chlorate for resale by your salesmen?

A. As I recall, the commitment for two thousand tons was made in '57, for the '58 period, as well as for the '59. Since Olin had already started on the test-marketing program we made no request for tonnage and, as I recall, none was offered to us during this period.

Q. Going back then to the first time when an offer was made by Pennsalt in the west to make sodium chlorate available to Olin, were you contacted prior to the commitment to Olin to ask whether you wanted any sodium chlorate made available for sale by your salesmen to pulp and paper companies in the east?

A. Now I am answering prior to '58?

Q. That is correct, sir.

A. Shortly after becoming Division Manager we in the division continued a project to endeavor to determine whether or not we could merchandise sodium chlorate to the pulp and paper industry. During this period I discussed the possibility of obtaining material from Mr. Shanaman, and I was told that while this varied from [fol. 1866] year to year that it would be possible that some would be made available to me if I got to the point that I wanted to have such a commitment.

Q. And what was your response to that offer?

A. We spent first some time reviewing the economics of the project. We asked our sales people to make a survey of the industry and determine whether or not they would be receptive to a second source of supply.

Mr. DeLone: "They"?

A. The industry would be the pulp and paper industry in the southeast, and if they would be receptive to having a second source of supply, and if that source of supply

could be Pennsalt. We were encouraged by the fact that many of the purchasing people called upon—or perhaps I should say some indicated they would be interested. So the sales people attempted to develop, would they be interested in our supplying material from our Portland operation if it would lead to an operation in the east for Pennsalt. Again we were encouraged that Yes, they would be receptive, provided that such offer of sales was backed up with a commitment on the part of Pennsalt that we were actually going ahead with the plant.

Mr. DeLone: Where?

The Witness: In the east.

A. The purchasing people made it very clear to us that [fol. 1867] they were not at all interested in a second source of supply which would continue for any length of time to be located at Portland, Oregon, for they, too, recognize the fact that this was a marginal area for us to ship into, and that if the material ever became tight, as it did periodically, that their supply would be cut off, and since this would be at a period where they would have a difficult time replacing us as a supplier, well, they did not regard us as a good supplier, providing that the production was going to come from Portland. We received sufficient encouragement from the pulp and paper industry in the southeast to proceed with a preliminary evaluation of the economics of this project. If the economics looked favorable we knew that we could proceed with a trial sales program using sodium chlorate from our west coast plant in Portland, Oregon.

Now, the results of this economic evaluation were very discouraging to us. The returns were very low by our standards. I would like to say that at this time we had a very active program within the division of capital expenditures. We were embarked company-wide on a major capital program. More than fifty million dollars had been committed in the five-year period after Mr. Drake became President, better than seventy per cent of which came into the Industrial Chemicals Division as approved [fol. 1868] projects. Consequently, we had many approved projects to work upon. We were reviewing many other types of projects. When we found sodium chlorate had

a very low return we frankly were discouraged by the possibility of being able to jell this as a project, and consequently never proceeded at that time to take advantage of the offer of material from Portland, because we were not sure that we could back it up with a production facility in the east, and since our information had told us very clearly that our sales effort would not be welcomed unless we had such a facility we did not go any further with our discussions with the paper mills as far as to get material to supply them.

By Mr. Freed:

Q. At the time the arrangement with Olin was entered into, did Pennsalt make any commitment as to its intentions to construct a joint production facility?

A. Commitments, sir?

Q. Yes, sir.

A. At the time that the test market with Olin was considered, as I recall, the decision had been made that it was unlikely that we in the east could come forth with a project that would be sufficient in return of investment to meet our standards, and consequently at that time accepted the possibility that a joint venture should be considered, and that Olin Mathieson was a logical partner to consider.

[fol. 1869] Q. At that time, did Pennsalt make a commitment that it would undertake a joint production facility with Olin?

Mr. DeLone: Could we fix the time to which both of you have reference?

By Mr. Freed:

Q. Would you do that, sir?

A. About the end of 1957, I believe is the correct time, and to the best of my knowledge there was no commitment in terms of how I understand the use of the word commitment.

Q. To your knowledge, was Olin in its test-marketing sales able to make a commitment to the pulp and paper companies in the south respecting the construction of a production facility for sodium chlorate itself?

A. I am not in a position to comment upon how Olin Mathieson conducted their sales with—what their approach was, what they found in the market.

Q. To your knowledge, did Olin at any time prior to the Penn-Olin negotiations at the start of 1960, ever indicate to Pennsalt that it had made a decision to construct a sodium chlorate facility in the east?

A. To my knowledge there was never such a statement.

Q. Can you tell us, sir, the difference, if you know, between the kind of commitment or undertaking which an Olin salesman selling sodium chlorate in the east in 1958, and '59, could make to a pulp and paper company customer in comparison with the kind of commitment that a Penn- [fol. 1870] salt salesman could make?

Mr. DeLone: In light of his previous answer I object to the form of that question. I think he has already answered it.

By Mr. Freed:

Q. Subject to Mr. DeLone's objection, sir, would you answer the question?

A. I am not in a position to have any knowledge of how they approached the sales to the pulp and paper industry. I am sure you recognize they were selling the people to a far greater extent than we were, so they had information that I didn't have.

Q. But are there any facts known to you which would bear on the question of whether Olin was able to make a more firm commitment with regard to producing sodium chlorate in the east than Pennsalt was?

A. I have no facts available, sir.

Q. If in fact Olin was not able, during the period 1958, 1959, to commit itself to the construction of a sodium chlorate facility in the east, were there any other factors that would place Pennsalt salesmen at a disadvantage compared to Olin salesmen in trying to sell sodium chlorate?

Mr. DeLone: I object to the form of that question in light of the last answer, because other factors were mentioned.

[fol. 1871] Mr. Freed: I don't quite understand the objection.

Well, I will withdraw the last question.

By Mr. Freed:

Q. Sir, what was the nature of Olin's better position to sell sodium chlorate in the east in 1958, and 1959, in contrast to Pennsalt's?

A. I felt that Olin could test-market the southeast in better fashion than Pennsalt could, for the simple reason that they were selling pulp and paper mills in the southeast which we were not. They had installed their chlorine dioxide process I believe in many of these mills, and consequently had an entree to them on the basis of contacts in relation to chlorine dioxide that we had not developed in the southeast.

Q. Was it your understanding, sir, at the time of the test-marketing program that the test-marketing was being done with a view towards a joint Olin-Pennsalt sodium chlorate operation in the east if successful?

A. In my mind when the test-market was put together I was convinced that Pennsalt could not on an economical basis put together a project which would enable us to have a producing facility in the east. I was of the opinion that a partner, or some other arrangement of that nature, must be undertaken, and certainly Olin Mathieson was one of several who might be considered for such a venture.

[fol. 1872] Q. Was Olin Mathieson at this time, 1957, and 1958, the only partner that you were considering?

A. I think the answer to that is yes, if you limit it to my personal consideration. I can't speak for what others might have considered.

Q. Are you aware of any other companies that were at this time being considered by other members of Pennsalt's management?

A. I don't believe my recollection is sufficiently accurate to suggest any others.

Q. At the time the sales arrangement with Olin was entered into, was it contemplated that if a joint production facility were eventually established that Olin would be the exclusive sales agent for it?

A. I am sure that this question had not been resolved. It had certainly been discussed. There were all sorts of opinions as to whether or not this was the best arrangement. I don't think there was any attempt to decide the details of how such an arrangement should be worked. We at this stage were still attempting to see, could a project be put together which would comply with the standards of Pennsalt, and once we had such a project then was the time to sit down and decide the details of how such a project would be actually put into being.

Q. Then in the period beginning late 1957, and running [fol. 1873] through the end of 1959, no decision was made with respect to Olin becoming exclusive sales agent of a prospective sodium chlorate plant in the east, is that correct, sir?

A. To the best of my knowledge that is correct.

Q. During this period, was there a decision by Pennsalt management that Pennsalt had nothing to offer in the way of sales effort in relation to a joint sodium chlorate facility?

A. On the contrary, I am sure that many people within Pennsalt felt that they had something to offer. We had experience in the northwest in the successful application of chlorate, to chlorine dioxide, to pulp and paper. We, therefore, had technical service information that Olin Mathieson did not have. At least we could help them. I believe this service was offered to Olin Mathieson at that time. So certainly this was considered an asset.

Q. And did you yourself hold that belief in the period at least beginning in late 1957, namely, that Pennsalt did have something to offer in its sales effort in connection with a joint facility?

A. I certainly shared the opinion that Pennsalt's technical service in the northwest was doing an excellent job.

Q. And did your opinion extend to a belief that that experience in the northwest could be of assistance in an eastern sales effort?

[fol. 1874] A. Yes, sir.

Q. Can you tell us then in the interest of a successful test-marketing experiment whether any decision was made that only Olin and not Pennsalt would engage in the test-marketing effort?

A. By a decision now are you referring to a corporate decision?

Q. Either a corporate decision or a decision on your part, if your decision was all that was required.

A. I am not aware of any corporate decision in this matter. In fact, I believe I am aware of the fact that the sales effort to the extent that it was available from the west was made available, and as far as I know was used by Olin in its test-marketing. The decision that I made within the division was that it was not profitable for me to expend the effort of sales people to duplicate or attempt to assist Olin Mathieson in its test-marketing. This was solely a divisional matter.

Q. And did this decision extend to those pulp and paper accounts in which Pennsalt did have a favorable reception, an entree?

A. We continued to sell small quantities of sodium chlorate through this entire period into areas where it was profitable for us to do so.

Q. Could you tell us what areas those included, sir?

[fol. 1875] A. Well, one I remember specifically is Buckeye Cellulose, Procter and Gamble's plant at Foley, Florida.

Q. Were there any others?

A. I believe in that period there was one or two others. I can't be specific, though.

Q. What were the instructions, or what was the practice in handling requests from pulp and paper companies to Pennsalt salesmen with regard to the sale of sodium chlorate in the period beginning late 1957, to the end of '59?

A. I don't recall any formal instructions, Mr. Freed. I have testified previously what the general understanding was. I don't think there were any formal instructions.

Q. Then confining your answer solely to the practice that you followed, how did you handle in this period inquiries initiated by a paper company to Pennsalt for sodium chlorates?

Mr. DeLone: I object to that as having already been fully covered.

By Mr. Freed:

Q. And subject to that objection, sir, would you answer?

A. Let me repeat what I thought I had said before. Each year salesmen would turn into his sales manager a list of customers he felt he could sell. This was reviewed in Philadelphia. The decision was made as to whether or [fol. 1876] not to handle such an inquiry if it was made at that time. We advised Mr. Shanaman of the amount of the material we felt we could handle, and proceeded on another year.

Q. Were there any inquiries to your knowledge at the end of 1957, to Pennsalt other than from Buckeye for sodium chlorate?

A. Yes, I am sure there were several. I do not remember any of them specifically.

Q. Were any such inquiries turned over to Olin Mathieson during this time?

A. To the best of my recollection, no.

Q. The memorandum of December 30, 1959, Plaintiff Drake's Exhibit 43, refers in the last sentence of the second paragraph to the fact that "Our contacts with paper mills turned up inquiries from time to time such as the present one we have with Waldorf Paper Products in Wisconsin."

A. Yes.

Q. Can you tell us the nature of that inquiry from Waldorf?

A. I do not remember the nature.

Q. Can you tell us what was done with the inquiry?

A. To the best of my recollection I at this time talked to Mr. Shanaman about whether or not he was interested in supplying us with additional material for Waldorf Paper. This was at the end of 1959, and at which time Mr. Shanaman told me he was able to market all of his sodium chlo- [fol. 1877] rate in the west, and unless I was using Waldorf Paper as an entree for production in the east that he had no interest in supplying me with material. Consequently, we would go back to Waldorf and tell them we were not in a position to supply them with material.

Q. And do you recall whether the name of Waldorf was turned over to Olin?

A. I do not recall that it was.

* * * * * * *

[fol. 1878] Q. In light of the arrangement which had [fol. 1879] already been entered into with Olin for the sale of sodium chlorate in the east, can you tell us the purpose of getting a projection regarding Pennsalt's ability to sell sodium chlorate in the east at this time?

A. As I mentioned, it strictly was a matter of keeping the project as started in November going until it was finished. This type of information needed to be recorded. We needed to have that further documentation, if you will, of the comments that he had given me verbally, and, as he had reported here, we had had discussion of the project before, our five-year planning meeting, and I am only insisting here that he complete the record.

Q. Then is it correct, sir, that as of the date of this memorandum there had been no final decision on the part of Pennsalt not to enter the sodium chlorate market in the east alone?

A. Mr. Freed, the final decision on sodium chlorate for me will come when I cease to be a member of Pennsalt. There is no finality in the corporate sense. You don't decide one thing irrevocably. As conditions change you merely attempt to put a judgment upon the conditions as you see them at the time. We very often find that a project like this, in my experience, goes through cycles, and this, of course, is the reason why you want to have the information previously done completed to a logical [fol. 1880] stopping point, because very often you find yourself going back, as we did many times in this project, and building from what you had. If you lose what you had before you have lost a good deal of company effort and time.

Q. But is it correct, sir, that as of the date of this memorandum no final decision had been made?

A. If your reference to final is irrevocable I would have to say yes.

* * * * * * *

[fol. 1881] Q. Mr. Land, in Plaintiffs Drake Exhibit 13, which is a memorandum from you to Mr. Drake of December 27, 1956, a reference was made in the middle paragraph to Pennsalt's prior studies of return on investment in the sodium chlorate project in the east, and the following sentence appears: "Incidentally, the last time we talked with Olin Mathieson about building a chlorate plant they told us they had investigated the possibility of building a plant in the east, and that their cost figures, both capital and manufacturing, were surprisingly close to ours." Are the conversations referred to here with Olin the ones you have previously referred to in which Pennsalt was represented by Mr. Grogan?

A. They are.

Q. And did you at any time receive the cost figures, cost [fol. 1882] estimates, referred to in this sentence?

A. I did not receive any cost estimates, and I believe there were no formal cost estimates submitted. This was merely a matter of conversation, which was recorded, repeated for what it was worth.

Q. Was Mr. Grogan at the time of Plaintiffs Drake Exhibit No. 13 the man in your division who had responsibility for making or analyzing cost figures, both capital and manufacturing, respecting the chlorate project?

A. The answer is no.

Q. Do you know, or do you recall, the basis on which you made the statement in this memorandum that Olin's figures were surprisingly close to Pennsalt's?

A. The basis was, as I can recall, strictly a statement made to me by Mr. Grogan of his conversation. I did not place any undue emphasis upon it, because as you have indicated, Mr. Grogan was not in a position to evaluate manufacturing costs or return on investments in a precise fashion, and I am sure all he was doing is recording an exchange of conversation.

Mr. DeLone: You said "as you have indicated;" did you mean Mr. Freed, or did you mean as you had indicated?

The Witness: I meant Mr. Freed.

A. You had asked me in a previous question, was Mr. [fol. 1883] Grogan the person who would evaluate such things within the company, and I said no.

By Mr. Freed:

Q. Then is it correct, sir, this sentence which begins with the word "Incidentally" was a summary on your part of information which had been furnished to you by Mr. Grogan, and was based on no information apart from that?

A. That is correct. That is the reason I used the term "we" in here. It is not information that I had directly. I am recording for the division information we had.

Q. In the first paragraph of Plaintiffs Drake Exhibit No. 13 you made the statement that "It should be helpful to know why we cannot justify a sodium chlorate plant in the east, especially since this product fits ideally into our product line." Can you explain to us what you meant about how sodium chlorate fit into Pennsalt's product line at the time of this memorandum?

A. Yes, sir. We in the Industrial Division in the east were selling chlorine, caustic soda, ammonia and some peroxide to the pulp and paper industry. Since sodium chlorate also fits to the pulp and paper industry this would be another ideal product to fit that same sale effort if we could be justified in producting this product in the east.

Q. On the basis of your experience as a marketer, or man in charge of the marketing of chemicals to the pulp [fol. 1884] and paper industry, can you tell us, Mr. Land, whether the addition of products to the product line of your company had any influence on the ability of Pennsalt to sell the products originally in the line?

Mr. DeLone: Would you repeat that question, please?

(Whereupon, the Court Reporter read from his machine shorthand notes as follows: "On the basis of your experience as a marketer, or man in charge of the marketing of chemicals to the pulp and paper industry, can you tell us, Mr. Land, whether the addition of products to the product line of your company had any influence on the ability of Pennsalt to sell the products originally in the line?")

Mr. DeLone: I don't know of any testimony that he is a marketer, but taking the question as one in charge or responsible for marketing, if he can answer it it is all right with me.

A. You could develop a theory that products in a line support each other, and I am sure that a profitable usable product that could be added to our pulp and paper sales line could assist us in marketing other products we were selling to the pulp and paper industry. In fact, this is one of the reasons that kept sodium chlorate on our project [fol. 1885] list long after it would have been dropped under usual circumstances.

By Mr. Freed:

Q. You made reference, sir, to the fact that "You could develop a theory."?

A. I could.

Q. Has it been your experience, sir, that the addition of chemical products to the line of chemicals which Pennsalt furnishes to the pulp and paper industry has been a benefit in the over-all sale of chemicals to pulp and paper customers? And I do not confine you to sodium chlorate, but to your general chemical background and experience.

A. Generally I would say that is true.

Q. With respect to your last answer, sir, does the addition of chemical products to the line of chemicals which you sell to the pulp and paper industry normally benefit the company insofar as the sales overhead or sales expense is concerned?

A. I have to qualify an answer here, in that normally you would expect that a product that was added to the line would be able to be sold through existing personnel, and in so doing would certainly decrease the amount of overhead sales-wise assigned to each product sale. The qualification I make is that if the product added to the line is of a nature that it itself requires substantial technical service, then in fact it may cost from a sales [fol. 1886] standpoint more than any other products in the line. So it is very hard to generalize.

Q. And focusing your attention to the addition of sodium chlorate to the line of chemicals furnished to pulp and

paper companies, would you tell us how your previous answer relates to the addition of that product of the line?

A. Yes. Without any question, in my opinion the addition of sodium chlorate to the line of chemicals we are now selling to the pulp and paper industry in the east would require a substantial addition to our technical service effort, and a substantial period of time to make us a qualified sales group in the east.

Q. Sir, would it be correct to conclude from your last few answers that the addition of sodium chlorate to a chemical company's line of products sold to pulp and paper companies would tend to decrease the sales overhead in selling those chemicals insofar as the salesmen are concerned, but in addition to that factor a company would have to take into account the additional expense which might be incurred in providing technical assistance? Is that the import of your testimony, or have I summarized it incorrectly?

Mr. DeLone: I object to your summarizing in terms of a chemical company when the questions heretofore have been based on this witness's experience in Pennsalt.

[fol. 1887] Mr. Freed: I accept your observation, sir.

By Mr. Freed:

Q. I ask you to confine your response to my question to Pennsalt.

A. I think you have summarized it properly as far as Pennsalt's Industrial-East is concerned.

Q. Apart from the economies or expenses involved in selling a full line of chemicals, or a fuller line of chemicals, to pulp and paper companies, has it been your experience, sir, that the carrying of a fuller line of chemicals aids your company in the sale of individual products to pulp and paper companies?

A. If you will let me answer that in the context that there is no overriding factor that will overcome the economics of a particular project which determines whether that product can be added to the line. With that reservation what you say is true. A fuller line can influence sales of all products in the line in my opinion. The benefit,

however, must show in the over-all evaluation of the cost of adding the product to the line to be meaningful.

Q. If the economic factors which you have mentioned with respect to adding products to a chemical line are satisfied, is it a factor under those circumstances that the ability of your company to carry a fuller line of chemicals will aid it in its ability to compete with other suppliers of chemicals to pulp and paper companies?

[fol. 1888] A. I don't know whether I can intelligently elaborate upon the effect of its helping sell other products in the line, and how that helps me measure up competitively. Anything obviously that helps Pennsalt do a better job helps it competitively, but these situations are never identical, and it is almost impossible to make one general comparison with competition generally. It is very difficult to do.

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[fol. 1889] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 401

New York, N. Y.

EXCERPTS FROM DEPOSITION OF WILLIAM CECIL GARDINER TAKEN ON SEPTEMBER 13, 1961

* * * * * * *

[fol. 1890] WILLIAM CECIL GARDINER, being first duly sworn by the notary public, testified as follows:

Direct examination.

By Mr. Copley:

Q. State your name and address for the record, sir.

[fol. 1891] A. William Cecil Gardiner, 1084 Ridge Road, Lewiston, New York.

Q. What is your present position with Olin Mathieson?

A. Manager, electrochemical research; research department, Chemicals Division, Olin Mathieson Chemical Corporation.

Q. Could you tell us briefly what your duties are in that position?

A. I supervise the activities of several research chemists and chemical engineers in the field of electrochemistry.

Q. What would your relation with Mr. Wood be in the company?

A. Mr. Wood is, I believe, an electrochemical engineer in the operating department. I am in the research department.

Q. And your present relation to Dr. Wojcik?

A. Dr. Wojcik, so far as I know, is on the staff of the Chemicals Division.

Mr. Copley: Would you read back the last answer.

(Answer read.)

Q. And at the present time you have no direct [fol. 1892] relationship with him in so far as the organization and the flow of Olin personnel is concerned?

A. No.

Q. Doctor, when did you first have any connection with sodium chlorate?

A. In the 1930s.

Q. Without going into great detail, could you tell us what that relation was initially?

A. Probably cost estimates on proposed processes.

Q. And at this time you are employed by Olin?

A. No; Mathieson Alkali Works.

Q. Perhaps for clarify, unless I state otherwise, when I refer to Olin, I mean Olin and its predecessor corporation, to the extent that you have had relations in connection with them.

Could you briefly trace for us your sodium chlorate history with Olin, or its predecessors, starting at the time subsequent to your initial relations with sodium chlorate?

A. I knew that Olin had a sodium chlorite process for which sodium chlorate is a raw material. It would be technically interesting to have been in the sodium chlorate business so that we could produce our raw material. I did not have any direct contact with the sodium chlorite [fol. 1893] or chlorine dioxide operation.

I was in Europe in 1946 as a scientific consultant and wrote a report on the German production of sodium chlorite which utilized sodium chlorate and sulfur dioxide.

Through the years I have read the scientific literature pertaining to sodium chlorate production on the chance that it would some day be a process to be operated by Olin.

From time to time there were requests by management to look at the economics of producing sodium chlorate. This was usually stimulated by sources of information from Europe.

I had an engineer working for me early in 1950—'50s, who was assigned to work on sodium chlorate, but after several months he was discharged because he was not doing a good job. The work was dropped for lack of personnel.

Work was resumed several years ago in the research department. I cannot give you the exact dates, but the reports starting with an H-35 series and a new series have reported on the work done since that time.

Q. And you are speaking now of the mid-'50s?

A. Yes.

Q. To date? From the mid-'50s to date is [fol. 1894] the period you are speaking of when you say these reports reflect the activities of the research and development?

A. Yes.

Q. You mentioned that from time to time requests had been made by management to evaluate the process for producing sodium chlorate. Could you specify, beginning with the earliest request, under what circumstances these requests were made?

A. It would be a request from the director of research to make the study.

Q. And who would that have been from the time of the earliest request?

A. Mr. Gage, R. E. Gage.

Q. What was the time involved—what date?

A. From the '30s on.

Q. In other words, the requests that were made of you to conduct these studies were all made by Mr. Gage?

A. There were subsequent directors of research.

Q. Who were those?

A. There was a Dr. G. P. Vincent, Dr. Carl M. Prutton, Dr. Bruno Wojcik, Mr. B. H. Nicolaisen.

Q. And that brings us up to date?

A. Right.

Q. When did Dr. Wojcik assume the position of [fol. 1895] director of research? Do you recall?

A. No.

Q. Could you give us an approximation?

A. In the middle '50s somewhere.

Q. From the middle '50s on, was Dr. Wojcik the only individual who requested that you perform or conduct surveys regarding sodium chlorate?

A. Yes.

Q. And by surveys, I would mean all research and development, studies.

A. Yes.

Q. And who is the engineer you spoke of who performed work in sodium chlorate research in the mid-'50s?

A. I can't remember his name.

It just occurred to me. Prodan.

Q. What was Mr. Prodan's assignment?

A. To study the literature on the production of sodium chlorate and recommend a research and development program.

Q. And did he recommend such a program?

A. No.

Q. Did someone subsequent to Mr. Prodan's discharge undertake his duties?

A. Not until work was started by Mr. Holmes [fol. 1896] several years later.

Q. What is the most recent report in the—I suppose it can now be the U series that has been conducted by Olin regarding sodium chlorate?

A. U-2.502.

Q. I did not mean to confine your attention to reports in the U series. Have there been other recent reports regarding sodium chlorate by Olin Mathieson?

A. Not to my knowledge, "Mr. A. J. Holmes, before he left Olin earlier this year, wrote out in longhand a first draft of a report entitled 'Economic Analysis of Platinized Titanium Chlorate Cell Anodes and Pilot Plants for their Test.' However, no work has been done on that report since Mr. Holmes left."

Q. Doctor, the report to which you refer is dated 4-27-60, and report typed 5-18-1960. Has Olin conducted any research and development activities relating to sodium chlorate since this report was dated?

A. Yes. Some experimental work was done for several months after this.

Q. What was the nature of that experimental work?

A. The study of life tests of platinized titanium anodes.

Q. What were the results of these tests?

A. We concluded that platinized titanium was a competitive material for graphite for the production of sodium chlorate and was worthy of the tests on a larger [fol. 1897] scale.

Q. Who made these conclusions?

A. Mr. Holmes.

Q. He was the sole individual who conducted these tests?

A. He had a laboratory assistant by the name of R. F. Fogle.

Q. Were these two men the only participants in the testing?

A. There was a technician.

Q. And who was that?

A. Roland Grandin.

Q. What happened to their recommendation that larger cells be tested?

A. The proposal was on the budget for 1961, but it was cancelled and the work was discontinued.

Q. Who made the recommendation that this be included in the 1961 budget?

A. I did.

Q. Did Mr. Holmes make a written report to you?

A. Nothing further than what is in this. For the record, this report U-2.502.

[fol. 1898] Mr. Copley: For easy reference, I would like the reporter to mark this as Plaintiff's Gardiner Exhibit No. 1.

(Report U-2.502, "Electrochemical Survey Report," marked Plaintiff's (Gardiner) Exhibit 1 for identification.)

Q. To whom did you make your recommendation after you had received this report from Mr. Holmes?

A. It was only in the form of a budget request, together with many other research projects, and turned over to the manager of development who probably turned it over—who passed it up to his superior.

Q. And the manager of the development at this time was who, sir?

A. Bernard H. Nicolaisen.

Q. Do you know to whom Mr. Nicolaisen passed this report after you spoke to him about it?

A. To Mr. C. C. Hightower.

Q. What was Mr. Hightower's role in this negotiation, or in this series of events?

A. Mr. Nicolaisen reported to Mr. Hightower. Mr. Hightower, I believe, was the manager of operations.

Q. Did you prepare the budget request which would relate to the larger cells of sodium chlorate?

A. They were prepared by Mr. Holmes under my [fol. 1899] supervision.

Q. What material did you give to Mr. Nicolaisen?

Mr. Barnum: In what connection?

Mr. Copley: In connection with this budget request and the proposal by Mr. Holmes to build larger cells.

A. It would be a very brief description of the project with the estimated money, and I probably gave it to him in a longhand form.

Q. Do you recall what Mr. Nicolaisen's reaction to your report was?

A. No.

Q. Did you discuss it with Mr. Nicolaisen?

A. Probably.

Q. Do you know what action Mr. Nicolaisen took after you submitted your proposal to him?

A. It was assembled with other similar writeups of projects and submitted to Mr. Hightower.

Q. By other projects, you mean projects other than sodium chlorate?

A. Yes.

Q. Did you ever talk with Mr. Hightower regarding these proposals?

A. No.

[fol. 1900] Q. Do you know what happened to the proposal after it reached Mr. Hightower?

A. No.

Q. Do you know whether or not Mr. Hightower forwarded the proposal to higher management?

A. I think so.

Q. Subsequent to Mr. Hightower's receipt of the report to which you referred, did you discuss the progress of the report with Mr. Nicolaisen?

A. Yes.

Q. And what did Mr. Nicolaisen say?

A. He said that that project had been eliminated from the 1961 budget.

Q. Did he say why?

A. We had projects that were more interesting for the manpower that we had to develop them.

Q. Did Mr. Nicolaisen say at what stage the proposal had been eliminated?

A. No.

Q. And were the other projects to which you referred related to operations at Niagara Falls?

A. Not necessarily.

Q. Were the other projects related to sodium chlorate?

[fol. 1901] A. No.

Q. Did you ever speak with Mr. Hightower about this matter again?

A. No.

Q. Have you spoken to anyone regarding the reasons that the proposal was eliminated?

A. No.

Mr. Copley: Off the record.

(Discussion off the record.)

Q. Dr. Gardiner, would you direct your attention to page 3 of Plaintiff's Gardiner Exhibit No. 1?

Mr. Copley: Off the record.

(Discussion off the record.)

Q. In part this report states:

> "A study has been made to evaluate the proposal to attach chlorate cells to the new Niagara chlorine plant to produce the sodium chlorate required by the sodium chlorite plant."

Does the word "proposal" refer to Mr. Holmes' proposal, or to what does that refer, sir?

A. I think that was my proposal.

Q. I think I have lost the sequence of events. What do you mean by "my proposal"?

A. My idea; let's do something.

[fol. 1902] Q. With whom did you discuss this idea prior to the preparation of this report?

A. Holmes.

Q. With Holmes, I see. I have it now.

Subsequently in this paragraph on page 3 it states:

> "The process is economically attractive."

Who made this estimate?

A. Holmes.

Q. Had any studies other than the one conducted by Mr. Holmes been made regarding the economic attractiveness of the project?

A. No.

Q. Did Mr. Holmes make any reports which deal with the economic attractiveness of this project, other than what is contained here in Plaintiff's Gardiner Exhibit No. 1, I should add?

A. Not unless it is in the other U-2.501 or in Mr. Holmes' draft of a report relating to platinized titanium anodes.

Q. I see. Do you recall discussing the economic attractiveness of this proposal with Mr. Holmes?

A. Not specifically, but I am sure that we did.

Q. Do you recall discussing the subject of economic attractiveness with anyone else?

A. No.

[fol. 1903] Q. On page 4 of Plaintiff's Gardiner Exhibit No. 1, under the heading "Introduction," the report makes reference to purchases from Hooker, and plans to expand consumption at Niagara to 220 tons a month.

Do you see the paragraph to which I refer, sir?

A. Yes.

Q. Do you recall whether this consumption was expanded?

A. It has not been expanded.

Q. What is the present consumption of sodium chlorate at Niagara?

A. I presume that it is 120 tons per month.

Q. And this requirement is supplied by Hooker; is that correct?

A. Yes.

Q. Do you know what reference the word "plans" has?

A. I have heard it discussed and I referred Mr. Holmes to the operating department to get these consumption figures.

Q. When you say you heard it discussed, whom did you hear discussing this?

A. I think that it was Mr. Nicolaisen.

[fol. 1904] Q. What did Mr. Nicolaisen say?

A. I don't remember.

Q. Did you discuss it with anyone else?

A. I don't remember.

Q. On page 7 of Plaintiff's Gardiner Exhibit No. 1, under the heading "Conclusions," the report in part states:

"The attachment of a chlorate plant to the Niagara chlorine plant is economically attractive."

Do you recall discussing this conclusion with anyone, sir?

A. Only with Mr. Holmes.

Q. Did you discuss it or do you recall discussing it with Mr. Nicolaisen?

A. No.

Q. Dr. Gardiner, what is the status of the full-scale chlorate plant consideration referred to in paragraph labeled "Conclusions"?

A. At the moment it is dead.

Q. Well, we know about its inception and its death. Could you fill us in on the considerations?

A. Excuse me, I misunderstood your question. By a full-scale chlorate plant, we would think in terms of [fol. 1905] 40 tons per day, I think it is.

We have done all our estimating on the basis of 40 tons a day, and that is what we consider full scale.

Q. What happened to this consideration?

A. It became Penn-Olin.

Q. Was this report made in connection with Penn-Olin?

A. No.

Q. Was it in any way connected with the Penn-Olin technical investigation that was carried on in 1960?

A. No.

Q. Doctor, are you aware of the fact that a letter agreement had been entered into on February 11, 1960, between Olin and Pennsalt with respect to the formation of Penn-Olin? Generally familiar, not specifically.

A. Was I?

Q. Yes, sir.

Mr. Barnum: As of what period of time, Mr. Copley, if I may?

Mr. Copley: Was he aware when it was done?

Mr. Barnum: On February 11th, for example?

Mr. Copley: For example.

[fol. 1906] A. Yes.

Q. Do you know why, after that letter of intent was signed, that Olin was conducting research and development relating to sodium chlorate cells?

A. We considered it as a test of platinized titanium for use in our chlorine cells.

Q. My technical knowledge is certainly at a low ebb this morning. Why would you make these tests on chlorate cells if your purpose was to utilize them in chlorine cells?

A. Both cells currently require graphite. Platinized titanium has been claimed to apply to both chlorine and chlorate cells. We were set up to test it first in chlorate cells. We gradually shifted over to entirely chlorine cells, but in the meantime, merely as convenience, we continued the tests that were already started in laboratory chlorate cells.

Q. Did anyone in Olin take issue with the statement that the attachment of the chlorate plant to the Niagara Falls chlorine plant was economically attractive?

A. I think Mr. Wood considered that we had left out some important financial considerations.

Q. Do you recall what those considerations were?

[fol. 1907] A. I think he calls them nuts and bolts.

Q. And could you elaborate on the nuts-and-bolts theory?

A. I think that he refers to such things as real estate, sewers, offices, services, which the research engineer is inclined to overlook.

Q. Who in the management of Olin was aware of your studies, yours and Mr. Holmes' studies, respecting a sodium chlorate plant at Niagara Falls?

A. I don't know of anyone outside of the distribution list. Should I add which appears on the first page?

Q. Who is the—if I may use the word—highest ranking man on this distribution list in the management of Olin?

A. Mr. C. C. Hightower.

Q. Was Mr. Logan, do you think, aware of the studies respecting the sodium chlorate plant at Niagara Falls?

A. I don't know.

Q. Did you discuss with Mr. Hightower at any time the fact that these tests were going on?

A. I don't recall that I did.

Q. Did you have any discussion with Mr. High-

[fol. 1908] tower respecting these tests?

A. I don't recall that I did.

Q. Do you know either from discussions with Mr. Hightower or from discussions with others who might have talked with Mr. Hightower what Mr. Hightower's reaction was to this report?

A. No, I don't.

Q. Do you know how far up in the company's management the recommendations in this report, namely, Plaintiff's Gardiner Exhibit No. 1, went?

A. No, I don't.

Q. Was Mr. Block aware that these tests respecting the establishment of a sodium chlorate plant at Niagara Falls were going on?

A. Yes.

Q. Did you talk with Mr. Block about this?

A. He had lost interest at the time this report was written. Earlier, he did.

Q. What were your earlier discussions with Mr. Block?

A. In 1959 Mr. Block and Mr. Wojcik used to come to Niagara Falls for research and development reviews periodically, maybe every two months or so, at which time current progress on our projects was reviewed.

[fol. 1909] Q. What was Mr. Block's early view regarding the establishment of a chlorate plant at Niagara?

A. He was not active in coming to Niagara after this idea of mine on putting in a few cells at Niagara was under study by Mr. Holmes.

Q. What discussions did you have prior to the inception of your idea with Mr. Block respecting a chlorate plant at Niagara Falls?

A. We discussed only the technology of the platinized titanium anodes, the possibility of cooperative development with Vickers-Krebs, and we also, I think, discussed the proposals by Vickers-Krebs to build us a sodium chlorate plant. These proposals were the subject of electrochemical survey reports, of which you have copies, I believe.

Q. What was Mr. Block's view of the development of the platinized titanium anodes?

A. Interesting if successful.

Q. Did he subsequently lose interest in this project of developing platinized titanium anodes?

A. I don't know.

Q. Did you ever discuss your idea of establishing a chlorate plant at Niagara with Mr. Block?

A. I don't think so.

[fol. 1910] Q. Do you know what his views on the subject were?

A. No.

Q. When did Dr. Wojcik and Mr. Block begin to make their trips to Niagara?

A. Right after Mr. Block became responsible for the Industrial Chemicals Division, but I don't remember when that was, except that it was in the late '50s.

Q. Do you recall the first time that you discussed sodium chlorate research and development with Mr. Block?

A. No.

Q. What was the nature of the earlier discussions you had with Mr. Block?

A. We reviewed our current development results. We were also investigating outside sources of information, and he was commenting on means of pursuing our search for outside technology.

Q. What means did Mr. Block mention?

A. Excuse me?

Q. What means did Mr. Block mention?

A. To get the International Division and see what is available in Europe.

[fol. 1911] Q. Were there any other means, except procuring technology on foreign shores that Mr. Block mentioned?

A. Excuse me?

Mr. Copley: Read the question, please.

(Question read.)

A. No.

Q. In your former answer, sir, what did you mean by "investigate outside sources of information"?

A. Mr. Holmes' first report was a literature study of chlorate processes, and he reviewed all sources of information on the technology of sodium chlorate, including domestic and foreign.

Q. Do you recall what Mr. Block said respecting the current development results in sodium chlorate?

A. He encouraged us to proceed.

Q. In what way?

A. He told us where we were apt to find suppliers of—suppliers and fabricators of titanium for the platinized titanium cell.

Q. What else did Mr. Block say?

A. I know that he commented on our cell designs, but I do not remember any specific comments.

Q. Do you recall in general what he said about the [fol. 1912] design of the cells?

A. No.

Q. Was he favorably impressed?

A. He was willing to continue the investigation.

Q. Aside from the development of platinized titanium anodes, was Olin conducting other research and development with respect to sodium chlorate in 1959?

A. No.

Q. How long did Mr. Block maintain an interest in the development of platinized titanium anodes?

A. I don't recall him being there past about the middle of 1959, or after he had a heart attack.

* * * * * * *

[fol. 1913] Q. You mentioned that Mr. Wood felt that the recommendations left out the nuts and bolts. On the basis of his objections, was any recalculation made regarding economic attractiveness or unattractiveness of the project?

A. Not to my knowledge, no.

Q. Do you recall to what extent Mr. Wood's objections altered the estimates contained in this report?

A. No.

Q. Dr. Gardiner, it is the government's reading of electrochemical survey reports prior to Plaintiff's Gardiner Exhibit 1 that they were concerned generally with the development of a sodium chlorate cell and with the research and development respecting sodium chlorate. As Plaintiff's Exhibit No. 1 points out, the emphasis was shifted to a chlorate plant in conjunction with your Niagara Falls chlorine plant.

Could you describe for us what caused that shift in emphasis?

A. I considered this chlorate plant at Niagara as an adjunct to the chlorine plant as a glorified pilot plant which would allow us to develop further the platinized

[fol. 1914] titanium anode without spending a serious amount of money such as would be required for a full-scale plant, such as 40 tons per day.

Q. On page 7, under "Conclusions"—I have referred to the paragraph before—the report states that a 120-tons-per-month chlorate plant would provide information needed to build a full-scale chlorate plant as well as supply chlorate to the chlorite plant at a considerable savings.

Was the purpose of the pilot plant which you mentioned in your previous answer to provide a test for a later full-scale chlorate plant at some other site than Niagara?

A. Yes.

Q. At this point, what was the site that you had in mind?

A. The previous engineering reports had indicated that a plant in the Southeast, such as at Chattanooga, Tennessee, would be desirable.

Q. So, as I understand your testimony, this chlorate plant at Niagara would serve two functions, namely, a pilot plant for a subsequent chlorate plant in the Southeast, and, secondly, to supply the chlorate needs at Niagara for the chlorine plant?

[fol. 1915] A. That's right.

Q. After this recommendation or proposal was eliminated from the 1961 budget, what activities did Olin's research and development division engage in relating to sodium chlorate?

A. Only to continue the life tests on small platinized titanium anodes and laboratory cells.

Q. Where was this done?

A. In the laboratory at Niagara.

Q. And by "small," what do you mean?

A. I think that it was 10 amperes.

Q. In layman's language, what do you mean?

A. We were testing electrodes one inch by five inches long in maybe five cells. In other words, five pieces of titanium coated with platinum of that size so it was very small scale.

Q. Is Olin conducting this research today?

A. No.

Q. When was it discontinued?

A. I think it was about three months ago when the last of those electrodes failed.

Q. Could you amplify the reasons that it was discontinued?

A. We were confining our tests to platinized titanium [fol. 1916] anodes in chlorine cells, and that work is continuing, but not on chlorate.

Q. What was the reason that the tests on chlorate cells were discontinued?

A. The project was killed in the 1961 budget.

Q. And since then it has not been revived?

A. That's right.

Q. So would it be correct to say, sir, that since the killing of the project in the 1961 budget Olin has conducted no research and development relating to the perfection of a sodium chlorate cell?

A. That's correct.

Q. And would it also be correct to say that they performed no research with sodium chlorate at all?

A. That is correct.

Mr. Copley: I would like to ask the reporter to mark as Plaintiff's Gardiner Exhibit No. 2 a document from Dr. Gardiner to Dr. Wojcik dated November 26, 1956.

(Document above referred to marked Plaintiff's (Gardiner) Exhibit 2 for identification.)

Q. Do you have a copy of this in your files, sir?

A. We have it here.

[fol. 1917] Q. What was the purpose for which this report was prepared?

A. To acquaint ourselves with the status of the prior art.

Q. Could you tell us what patent problems Olin faced at this stage of the game respecting sodium chlorate?

A. We had no patent on sodium chlorate. We were finding what patents were in existence in the field.

Q. And did your study reflect any patent barriers in so far as possible entry in the sodium chlorate production by Olin was concerned?

A. The patents that were in existence were necessarily barriers, but there would be other paths to follow so that I don't think it was a complete barrier.

Q. Did you, or anyone else in Olin, make an effort to determine the availability of these patents to Olin?

A. Not to my knowledge.

Q. Who asked you to prepare this report?

A. No one. It is a normal procedure in research or development to review the literature as the first step on a new project.

[fol. 1918] Q. Did you later discuss this report with Dr. Wojcik?

A. I don't recall having done so.

Q. Do you know what Dr. Wojcik's reaction was to this report?

A. No.

Q. With whom did you discuss the report?

A. Mr. Holmes, and probably Mr. Turner and Mr. Fogle.

Q. At this time, were these people your subordinates?

A. Yes.

Q. Do you recall ever discussing the report with Mr. Logan?

A. No.

Q. With Mr. Nicolaisen?

A. No.

Q. The second paragraph of the first page of Plaintiff's Gardiner Exhibit 2 states that "The only ones that seemed to me to be important are the two Schumacher patents assigned to Western Electrochemical, and possibly Osborne assigned to Hooker."

Do you recall discussing this conclusion with anyone?

[fol. 1919] A. No, I don't.

Q. Do you recall anyone ever disputing your conclusion?

A. No.

Mr. Copley: I would like to ask the reporter to mark as Plaintiff's Gardiner Exhibit No. 3 "Electrochemical Survey Report H-35.502."

(Document above referred to marked Plaintiff's (Gardiner) Exhibit 3 for identification.)

Mr. Copley: Have you a copy of this report?

The Witness: Sorry, I didn't bring that material.

Q. On page No. 2 of this report is a statement that reads as follows:

> "Special emphasis is given to the position of Pennsylvania Salt Manufacturing Company in the domestic chlorate production picture."

Could you tell us, Dr. Gardiner, why special emphasis was given to Pennsylvania Salt, which is now Pennsalt Chemical Company?

A. Because—I think it is explained somewhere, but we believed that Oldbury would not be receptive to licensing their process since they were already operating a plant in [fol. 1920] the Southeast, and the American Potash & Chemical Corporation was also selling in that area and possibly had already announced the construction of a plant in the Southeast, so that it seemed as if the Pennsylvania Salt Manufacturing Company was the only company that was not already committed to a plant in the Southeast.

Q. Aside from the fact that Pennsalt did not have a plant in the Southeast, was there any other reason why special emphasis was given to them?

A. Not that I know of.

Q. On page No. 9 of Plaintiff's Gardiner Exhibit No. 3, under the heading "Buy 'Know-how'" is the following statement:

> "Pennsylvania Salt Manufacturing Company should be approached first because of present relationship and because of their West Coast location."

Did Olin make any overtures to Pennsalt?

A. Not to my knowledge, except that they later formed Penn-Olin, but I think that was much later.

Q. Who would be the person in Olin charged with the responsibility for obtaining information on sodium chlorate technology from an outside source?

A. The business arrangement to gain permission for [fol. 1921] an exchange of information would probably have been arranged by Mr. Logan. The obtaining of information on a technical scale would have been by Mr. Wood or myself.

Q. Do you know if Mr. Wood exerted any efforts in this direction?

A. No.

Q. Do you know or have you ever heard of Mr. Logan discussing such an arrangement?

A. No.

Q. Do you recall who made the determination that special emphasis would be given to Pennsalt?

A. Did you say "would be"?

Q. Yes, sir; I am referring——

A. Is it would be or should be?

Q. Well, the word is "is." Special emphasis is given to the position of Pennsalt.

A. I think that that wording is Mr. Holmes'.

Q. Aside from the wording import, do you recall who started the idea that special emphasis be given to Pennsalt?

A. It could have been mine.

Q. But you have no direct recollection on that?

A. That's right.

[fol. 1922] Q. I would like to direct your attention again to Plaintiff's Exhibit No. 2, which is the patent report which you prepared. You testified, I believe, sir, that the patent situation did not present a complete barrier, but did in some measure constitute a barrier. Could you specify the areas in which patents caused there to be a barrier to the company to enter into the sodium chlorate field?

A. I refer to the two Schumacher patents. These are for a particular cell design and for a method of treating the liquor coming from the cell in order to obtain sodium chlorate from it. These particular pieces of equipment and process would have been barred by the patents, in my opinion, for our use without going to them for a license.

Q. From your study of the previous patents pertaining to sodium chlorate, did the two Schumacher patents constitute the only ones which would be a barrier?

A. That was my opinion.

Q. Did Olin ever approach Schumacher?

A. No, not to my knowledge.

Q. Why not?

A. I don't know.

Q. Did Olin in its research and development pertain-[fol. 1923] ing to sodium chlorate conduct research and development in the area covered by the Schumacher patents?

A. No.

Q. Is the technical area covered by the Schumacher patents one which can be approached from different angles?

A. Yes.

Q. Did Olin consider that the Schumacher patent was a substantial barrier to its research and development activities in sodium chlorate?

A. No.

Q. What I am trying to get at, sir, is there are more ways than one to skin a cat and Schumacher had one of them, but there are other ways.

A. That is correct.

Mr. Copley: I would like to ask the reporter to mark as Plaintiff's Gardiner Exhibit 4 a document from Mr. Karr to Dr. LaLande, dated April 8, 1960.

(Document above referred to marked Plaintiff's (Gardiner) Exhibit 4 for identification.).

Q. Dr. Gardiner, do you recall discussing with anyone in Pennsalt the possibility of setting up a joint research and development program?

Mr. Barnum: Will you show the witness the document [fol. 1924] which you have offered as an exhibit, please?

Mr. Copley: Yes.

Q. I would like to show you Plaintiff's Gardiner Exhibit 4. Would you read the first two sentences of that into the record, sir?

A. "During the last meeting at Portland with the Olin Mathieson representatives, Dr. Gardiner mentioned to me privately that he thought that Pennsalt and Olin Mathieson should set up a joint development program on sodium chlorate for possible benefit to Penn-Olin in the future."

That was it.

Q. Do you recall discussing this with Mr. Karr?

A. Vaguely.

Q. What came of these conversations?

A. I was told by Mr. Wood that he was trying to set up a date for Mr. LaLande and Mr. Nicolaisen and myself to discuss the joint research and development program for Penn-Olin.

Q. Was such a meeting set up?

A. It was not.

Q. What was the reason?

[fol. 1925] A. I don't know. I think possibly procedure —this proceeding.

Q. By "this proceeding," you mean——

A. This court action, whatever——

Q. You mean U.S. vs. Penn-Olin.

Do you recall ever discussing with anyone the reasons why the proposal for a joint research and development program was dropped?

A. No.

Q. Is there such a joint research and development program today?

A. No.

Q. Dr. Gardiner, in answer to interrogatory 56, Olin mentions negotiations or discussions with Electro-Chimie respecting the possibility of purchases of sodium chlorate information from them. What role did you play in these talks?

A. I believe that I specified the engineering details for the plant that we were considering, and on receipt of their reply it formed the basis, I believe, of one of our engineering reports.

Q. What was the reply from Electro-Chimie?

A. They gave us a blueprint showing a proposed plant and the capital costs in francs and the operating costs, [fol. 1926] also in francs, and we interpreted those as best we could to United States conditions.

Q. What was the result of your interpretation and analysis of the data provided?

A. As I recall, it appeared that the sodium chlorate plant was a low-return investment.

Q. In the answer to which I have previously referred, it is stated that Olin did not pursue the possibility of purchasing such information from Electro-Chimie.

Could you tell us the reasons why Olin did not pursue this possibility?

A. As I recall, we got a competitive proposal from Vickers-Krebs and by comparison the Vickers-Krebs seemed more attractive.

Q. Who made this determination?

A. Either myself or Mr. Holmes.

[fol. 1927] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 402

New York, N. Y.

EXCERPTS FROM DEPOSITION OF STANLEY DE J. OSBORNE TAKEN ON OCTOBER 4, 1961

* * * * * * * *

[fol. 1928] STANLEY DE J. OSBORNE, called as a witness by plaintiff, having been first duly sworn by the Notary Public (Jacqueline Birkhahn), testified as follows:

Direct examination.

By Mr. Freed:

Q. Sir, would you state your name and home address?

[fol. 1929] A. Stanley de J. Osborne, 1 East End Avenue, New York City.

Q. Are you the president of Olin Mathieson Chemical Corporation?

A. I am.

Q. Are you a director of that company?

A. I am.

Q. How long have you been president?

A. Since May 2, 1957.

Q. Prior to that where were you employed?

A. I was employed by Olin Mathieson.

Q. In what capacity?

A. For the previous six months as financial vice-president and head of the International Division. Prior to that, the International Division.

Q. When did your employment with Olin commence?

A. Well, with Mathieson, the predecessors, in 1950, as treasurer of Mathieson Chemical Corporation.

Q. Do you have any field of specialization such as chemistry or chemical engineering, or a particular scientific background?

A. No, sir.

Q. Sir, did you make the final decision in February of 1960 that Olin would participate in a joint venture with [fol. 1930] Pennsalt?

Mr. Connelly: I object to the form of the question. It is assuming that a final decision was made.

Mr. Freed: I will revise the question. Strike the word "final."

Q. I ask whether in February 1960 it was you who made the decision that Olin would enter into a joint venture agreement with Pennsalt, providing for the creation of Penn-Olin Chemical Company.

A. As I recall, that was not a final—or a decision; it was a letter of intent in February 1960. I believe that to be true, and the signing of that by Olin was under my approval.

. . . . . .

[fol. 1931] Q. Apart from the location of the Bowaters' plant or consuming facility, can you tell us whether the same cost estimates, the same size of plant and the other financial considerations that went into the preparation of a recommendation regarding Chattanooga were used or incorporated into the plans for the Charleston facility?

A. I think, sir, that I made the remark before that I don't believe the Chattanooga plant ever reached the stage, at least to my knowledge, of engineering, full engineering and economic studies ready for presentation.

Q. Do you know at what stage the Chattanooga proposal was at the time the Charleston location first came to Olin's attention?

A. As far as my attention was concerned, Chattanooga was merely, generally speaking, an area proposal, and Chattanooga was picked because we had land there.

I don't believe, at least from my standpoint, it ever got to the point of a serious proposal within a specific period of building that plant. It may have been in the Division, but certainly never got to me for approval.

. . . . . .

[fol. 1932] Q. Mr. Osborne, I wonder whether upon your examination of Exhibits 1 and 2 you can describe for us the [fol. 1933] difference in timing and any other relevant factors apart from location that pertain to the change from a proposed chlorine caustic plant at Chattanooga to a plant at Charleston, Tennessee.

A. May I examine these?

Q. By all means, sir.

A. Could you repeat the question now?

(The question was read.)

A. First of all, I would like to emphasize that a Whither report, as far as I am concerned, is merely a set of objectives.

As far as I know and recall, Chattanooga was not a specific plant that was recommended by the Chemicals Division in final form to the management of Olin.

The Charleston plant was proposed primarily because the opportunity arose at Charleston, Tennessee, to supply an over-the-fence requirement of a large customer which took care of a substantial portion of the marketing problem of that product.

Q. From your examination of the two Whither Reports, can you tell us what the difference in timing was in that proposed construction schedule of the plant at Chattanooga and the plant at Charleston?

A. The 1959 Whither Report indicates the beginning of construction at the end of the first quarter of 1960 and [fol. 1934] completion by the middle of 1961 at Chattanooga.

The 1960 Whither Report indicates the start of construction at Charleston, Tennessee in the middle of 1960 and the completion in the twelfth month of 1961.

Q. Can you tell us, sir, with particular reference to Mr. Connelly's objection earlier, when the final decision was made by Olin to proceed with the joint venture?

A. I would say late August, early September 1960, as I recall.

Q. At that time did your decision take into consideration the status of Olin's plans to proceed with a chlorine caustic soda plant at Charleston?

A. No, sir, not that I recall.

* * * * * * *

[fol. 1935] Q. Could you elaborate on what you mean by financing outside the balance sheet?

A. A joint venture can create its own debt without having the parent companies guarantee it. If indeed it can, and, if that is the case, then it does not appear except as a note on the parent companies' balance sheet. It does not appear as a liability for any part that is borrowed to construct a plant.

Q. What is the significance outside of the appearance or non-appearance on the balance sheet of the guaranteed or unguaranteed feature of debt?

A. A guaranteed debt is a debt of the parent company. An unguaranteed debt is only remotely—it is a very contingent liability of the parent company only if the subsidiary completely fails, and therefore it is not considered by accountants nor the financial world as part of the debt structure of the parent company.

[fol. 1936] Q. Are there any circumstances under which the debt of a subsidiary which is unguaranteed would not become a responsibility of the parent company where the debt of a guaranteed subsidiary would?

A. Certainly.

Q. Can you describe the circumstances in which that would happen?

A. An unguaranteed debt is one on which the banks or whoever takes the debt is perfectly willing to ride on the credit of the subsidiary company or the affiliated company and does not look upon the parent company for repaying if there should be any failure.

Q. What was or is the credit basis of the joint subsidiary which would lead banks to give an unguaranteed loan?

A. First of all, the equity put into it by the parent company and, secondly, the business that they are going into.

Q. How would that differ from an investment by one company alone, for example, Olin, of precisely the same amount of capital to go into the same business?

A. If it is owned above 50 per cent, the accountants then say that it is a fully-consolidated subsidiary and therefore, in consolidation, the debt appears on the balance sheet.

Q. But apart from accounting reasons, can you tell us [fol. 1937] the difference in substance, the differences which

you would call to the attention of a bank to justify a loan on a different basis to a joint company than to a company which you are financing on your own?

A. If there are two equal subsidiaries and you ask a bank to finance a wholly-owned subsidiary entirely on its own without any guarantee of the parent, there is no difference.

Q. What is it in the joint venture format that enables you——

A. It does not appear on your balance sheet. It is not part of the overall credit of the corporation if it is owned less than 51 per cent.

Q. But what is it in the format of the joint company that will influence a bank to make an unguaranteed loan which, in circumstances where it would not give an unguaranteed loan to Olin as the sole owning corporation?

A. It is not a question of guarantee or non-guarantee, sir. It is a question of, in one case, if it is guaranteed on both sides, the same effect would exist.

If Olin and Pennsalt guaranteed the subsidiary's debt, then it would be a debt of Olin and Pennsalt. If it is not guaranteed, whether it is 50 per cent or not, it would not be a debt of Olin legally but, on the balance sheets, if it is [fol. 1938] a wholly-owned subsidiary it would appear as a debt, because the consolidation would take place.

Q. Perhaps I have not made my question clear. I would like to know the factors apart from accounting reasons which enable you or you hoped would enable you to finance a joint company on an unguaranteed basis in a situation where the bank would refuse to finance the venture on an unguaranteed basis if you were the only owner.

A. I don't think, sir, that is the point at all, because the bank would ask for a guarantee or not ask for a guarantee based on the intrinsic value of the subsidiary, whether owned or not owned, but if it is a non-guaranteed company, there is a great deal of difference if it is an affiliate as against being wholly-owned.

Q. But those differences are accounting differences.

A. They are accounting, and in accounting comes your whole credit structure and your whole debt structure as viewed by the financial community.

Q. But are there any differences in substance in those

ingredients which make up a sound credit format for the company, the subsidiary?

Mr. Connelly: I don't understand what you mean by differences in substance. You mean differences other than the ones that the witness has already mentioned?

[fol. 1939] Mr. Freed: Yes, sir, thank you, Mr. Connelly.

A. I just don't understand the question, what you are driving at here.

Q. Let us take two examples. In one case, $4 million capital is put up for a subsidiary, and $3 million is borrowed. The sole owner of the subsidiary is Olin.

In that circumstance, I gather, the debt, the $3 million debt of the subsidiary, appears on your balance sheet and is guaranteed by the parent company Olin.

A. Not necessarily.

Q. Under what circumstances might it not be guaranteed?

A. Any number of circumstances. In either case, it could be either guaranteed or not guaranteed, depending upon how good the bank considers the company that it is lending the money to.

Q. In the case of a sodium chlorate project such as you are discussing in this case, did Olin explore the possibility of putting up the $4 million capital on its own and borrowing the balance of the money as an unguaranteed loan?

A. No, sir, because we never got that far.

Q. Is that a possibility which was excluded in the course of your studies and decision-making processes as to whether to proceed by a joint venture or to go into the business alone?

[fol. 1940] A. It was certainly one of the attractions of the joint venture, yes.

Q. But is it an attraction which you determined would not be available if Olin entered the business on its own?

A. There is no question about it.

Q. And why is that, sir?

A. Because it would be a part of the debt structure of Olin. If it were a hundred per cent owned subsidiary of Olin, it would be a debt of Olin, whereas this way it is only an indirect debt of Olin, and therefore does not appear as part of the debt structure.

Q. But there was no determination made whether or not

that debt would be guaranteed or unguaranteed by Olin; is that correct?

A. Not to my knowledge, no.

Q. If Olin had determined to enter upon this particular project, the sodium chlorate facility, on its own, and had put up double the amount of capital which it agreed to do with Pennsalt, and had borrowed double the amount of money that it has undertaken to borrow for Penn-Olin, would the return on the investment to Olin have been the same?

A. Well, it all depends on how you consider the return on investment. If you include debt and equity, the return is the same for one as the other.

[fol. 1941] Q. And do you include both of those factors?

A. Yes, sir, although that is a matter of argument.

Q. In terms of Olin's overall balance sheet, then, can you tell us the difference between your investment in the joint venture and the possible alternative which you might have had of an investment in a wholly-owned venture?

A. If the joint venture had been financed as a joint venture was expected to be financed, and I recall the figures correctly, each of the parents was to put in a million and a half dollars of equity and there would be borrowed $4½ million dollars by Penn-Olin. In that case, the balance sheet of Olin would have a million and a half dollars of investment in Penn-Olin.

On the notes of the balance sheet, the auditors would say that the Penn-Olin Company, in which Olin had a million-and-a-half-dollar investment, also owed the banks $4½ million.

Q. In practical terms, would Olin stand behind the debt of Penn-Olin to the same extent that it would stand behind the debt of a wholly-owned subsidiary whose loan was unguaranteed?

A. Depending entirely upon the terms of the loan agreement which has never been negotiated.

. . . . . .

[fol. 1942] Q. Directing your attention, Mr. Osborne, to the extract page which is entitled "Section 4" and in particular to the reference in sub-paragraph A to chlorates and perchlorates, I wonder whether you can tell us whether

the receipt of this Whither Report with that discussion of the chlorate business constitutes, to your recollection, the first time in which the matter of sodium chlorate came to your attention.

A. To the best of my recollection, yes.

Q. At the time of this Whither Report, did you learn anything about Olin's efforts to enter the chlorate business or Olin's existing activities in the chlorate business, apart [fol. 1943] from those matters specifically stated in this excerpt?

A. Not as far as I can possibly recall.

Q. When as far as you can recall was the first time that you had a conversation with anyone in the company about the status of Olin's consideration of entry into the sodium chlorate business?

A. I would still think that was the Block conversation prior to February 1960.

Q. Mr. Osborne, could you describe for us the extent of Olin's interest or activity in the solid missile fuels business today?

A. Yes, sir. Our interest is, I would say, minimal. We are doing some work in the energy part of the Organics Division, I think in the gas generator business and in the double-based fluid ball explosives end.

Q. What is the status of activity within the company with reference to ammonium perchlorate?

A. As far as I know, zero.

Q. And are there any other solid propellants for missile fuels that Olin is presently producing?

A. Not that I know of. Technically I am very bad in this area.

Q. Can you tell us what consideration has been given to Olin's entry into the ammonium perchlorate business up to [fol. 1944] the present time?

A. As far as I am concerned, none.

Q. Have you had occasion to consider the circumstances under which Olin might enter that business?

A. No.

Q. Are you familiar, sir, with the reference to perchlorates, both in the letter of intent and in the articles of incorporation of Penn-Olin Chemical Company?

A. Yes, sir.

Q. Can you tell us the thinking that lay behind the inclusion of those chemicals?

A. No, sir, I do know that there was no consideration given for their production.

Q. Are you familiar, sir, with any research and development work which Olin has performed in recent times in connection with ammonium perchlorate?

A. I am not familiar with that.

• • • • • • •

[fol. 1945] Q. In the event that the demand for ammonium perchlorate should increase measurably in the near future, what part of your organization would undertake consideration of Olin's possible entry into the production of that chemical?

A. That could come from three or four different areas. The head of Research might consider it; the Explosives Division which encompasses the missile area would; and, lastly, with Penn-Olin Company, the Chemicals Division could, if there was to be any consideration of it.

Q. As far as you know, has consideration of ammonium perchlorate been foreclosed by any action of your company or is it simply a matter that you have not been called upon to consider up to the present time?

A. I do not believe it has been foreclosed. Neither do I believe that there is any consideration being given to it.

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[fol. 1946] Q. Mr. Osborne, returning for a moment to Osborne Exhibit 1 which is the 1959 Whither Report, you will note that on page 51 an economic summary of a sodium chlorate plant at Chattanooga is furnished. This is on Exhibit 30 which was revised in October 1959.

I wonder with specific reference to the data shown on this page whether you can tell us what, if any, further check or study was made of the figures or the underlying information that is summarized in this Whither Report.

A. To my knowledge, none.

Q. Do you know why?

A. Yes, sir, because the Whither Report is merely a

division's ideas of what they might want to have in future years. It is a path rather than a request.

Q. Do you know, sir, whether management or any management committee expressed any opinion one way or another on the Chattanooga sodium chlorate project upon receipt of the October 1959 revision?

A. Specifically the Chattanooga sodium chlorate plant I do not recall, and I do not believe there was any such evaluation.

Q. Then the decision not to proceed with further re-
[fol. 1947] finement or study of the data shown on page 51 was a matter that reposed solely within the Chemicals Division?

A. Yes, sir.

. . . . . .

[fol. 1948] Q. Was any consideration given in this meeting to the possibility that Pennsalt might proceed with the project on its own?

A. Not that I recall.

Q. If Olin stayed out?

A. I don't believe there was any.

Q. With particular reference to the reasons given on page 4 of these minutes for your decision not to proceed with the Penn-Olin venture, can you tell us, sir, what changes were effected or brought about in subsequent discussions and subsequent studies that led you to go on with the Penn-Olin venture?

A. First of all, the division under Mr. Block did not take my decision as a final decision but went back to work to re-evaluate the entire matter.

Secondly, Mr. Drake came down to see me—I believe he was in Maine at the time—with a group of the Pennsalt people to discuss this matter and to tell me that in his opinion he had gone to his board, had gotten their approval, and that the rate of return, which was one of the powerful factors which made me not want to go ahead with the thing, was not as low as the Chemicals Division had originally [fol. 1949] indicated.

He was much more optimistic than our own people had been. In questioning, I believe, with McWhirter, it

became apparent to me and to others that maybe Pennsalt's figures that had been transmitted to us on (a) capital use and (b) cost of operation as a battery limits plant were somewhat too conservative. The biggest single item that came out of this discussion was that the plant in fact was a 26,500-ton plant instead of a 25,000-ton plant, which changed the economics from about 8.7 per cent to 10.1. That was No. 1.

With that kind of a return on investment and with the fact that we had gone that far down the road, and with the fact that we felt that it could be financed for a very small amount of equity on each part, and the desire of the Chemicals Division, the strong desire of the Chemicals Division to be and stay in this business as a basic business rather than as a resale business, I changed my mind and went ahead.

* * * * * * *

[fol. 1950] Q. In your discussion at this meeting, was any consideration given to Olin's own existing or contemplated consumption of sodium chlorate in its own operations?

A. I frankly don't think we consume any, do we? I don't think we even produce bright sulfite in our paper mills, so I am not entirely sure.

* * * * * * *

[fol. 1951] Q. And to your knowledge at the present time are there any pulp or paper facilities of Olin in existence or in contemplation that would use sodium chlorate pulp?

A. Not that I know of; because I am not technically competent to say what sodium chlorate would be used for except for brightening sulfite, and we do not produce that, except there has been talk by the Paper Division of wanting an expansion into whiteboard, and that is not even being considered at the present time.

* * * * * * *

[fol. 1952] Q. You referred before, I believe, to a policy enjoining salesmen from using the company's purchases as a means of inducing sales.

Is that policy applicable to people higher up in the company than simply salesmen?

A. Well, first of all, there is a policy as to the salesmen. That is to prevent the obvious—every time they go in to see a customer, say, "Well, we bought something from you, and you've got to buy from us," and then having a succession of salesmen from other divisions following in behind.

There is no such policy restriction on anybody else at higher levels, because we don't consider it necessary to have such a policy, because it is understood that we don't use this practice.

• • • • • • •

[fol. 1953] Cross examination.

By Mr. Connelly:

[fol. 1954] Q. Mr. Osborne, in your direct examination you testified in response to Mr. Freed's questions concerning the time of executing the Penn-Olin letter of intent in February 1960, that Olin had under consideration three alternative suggestions for engaging in the production of sodium chlorate, one being the proposed McIntosh operation, another being the Chattanooga proposal, and the third being the Calvert City proposal.

At that time had Olin made a decision that it would, in one form or another, engage in the production of sodium chlorate?

A. No, sir.

Q. So that is it correct to say that that was another alternative that was then under consideration, that is to say, not engaging in that production in any form?

A. And continued until September 1960.

Q. You mentioned also in direct examination something about the ambition of Mr. Block to have a chemical facility in the TVA region as being part of the Chattanooga plant proposal. Did that have to do with sodium chlorate?

A. Not per se.

Q. That was a chemical facility of some kind?

A. Electro-chemical facility.

Q. You were examined at some length on the subject of [fol. 1955] the so-called Whither Reports of the Chemicals Division in 1958, 1959 and 1960 concerning their comments on proposed facilities for sodium chlorate.

Will you describe generally the procedure that is followed in connection with a divisional request for a capital appropriation for a new project?

A. A Whither Report as such is not necessarily part of an appropriations request. The Whither Report is intended to give the division the opportunity and the requirement of facing its future over a number of years and indicating what, in the division's opinion, is the direction to which the division should head and where the capital funds available to it should be devoted.

It is only when a Whither Report as a whole is approved that it becomes a program of expenditure which then must have the capital asset appropriation requests in detail submitted one by one after proper engineering, market studies and other requirements, the patent studies, et cetera.

In the case of the Chemicals Division, no Whither Report as such has ever been adopted as a program. It has only to date been a divisional opinion of where they would like to go. It has not yet received corporate approval.

Q. Generally speaking, in the case of capital appropriation requests submitted by the Chemicals Division, what [fol. 1956] happens, what is the procedure that is followed following receipt now of the formal request?

A. The first receiving point is the Accounting Department which checks the figuring and checks to see that the mathematics are correct as to return and as to the various other elements of figuring.

It then goes to the so-called CAR Committee, which is an appointed committee representing me, in fact, which has the vice-president for engineering as its chairman and various other people in the company as participants or members of the committee. They go into many of the details of this thing, and either send it back to the Division for re-appraisal or re-engineering or deny it or approve it.

If there is a denial, the division has the right of appeal to me. If there is an approval, of course the division is happy, and it comes to me; and normally, unless there is some question in my mind, I sign it. If it is over a hundred thousand dollars, it goes to the Financial Operating Policy Committee. If it is a program which could be many millions of dollars, it goes to the full Board.

Q. I take it that there are each year several requests for

capital appropriations that come up from the Chemicals Division.

A. Many.

[fol. 1957] Q. All of those go before the same Capital Appropriations Committee?

A. Yes, sir.

Q. And are they charged with the responsibility of making selections between alternative proposals?

A. Yes, sir.

Q. And recommending action?

A. And recommending action.

Q. Does that same committee have any function with reference to capital appropriations requests by other divisions of the company?

A. Yes, same thing.

Q. What are the other divisions of the company?

A. Organics; Packaging; Squibb; Winchester-Western; Metals; International.

Q. Does each of those divisions come up with its own special requests for capital appropriations for projects affecting it?

A. Yes, sir.

Q. You mentioned in answer to Mr. Freed's question on direct examination that in giving consideration to the Penn-Olin project as to whether the joint venture was or was not a desirable course to follow, one of the considerations you took into account was the financial one.

[fol. 1958] Were there any special financial problems affecting Olin during the period from 1958 to 1960?

A. Very serious ones.

Q. Would you describe generally what they were and how they arose?

A. As a result of a decision reached in, I believe, 1954, Olin embarked on an aluminum program which required the investment, before we got all through, of close to half a billion dollars. In our own cash, that amounted to somewhere around $125 million to $150 million. The balance was borrowed, which left the corporation, in 1957, shortly after I came in—and in 1958—in a financial stringency.

I had to stop, in 1958, all capital appropriations from all divisions until we got ourselves straightened around. I had to go to the market for a hundred million dollars

of borrowed money, 60 of which provided new money, and until we got ourselves straightened around, the other divisions other than Aluminum unfortunately were strangled or semi-strangled.

However, by the middle of 1959 it became apparent that we were over the hump. The company had pulled in and gotten itself straightened out financially, and a limited number of appropriations were opened up. It still is a fact that we pick and choose carefully to see where our [fol. 1959] capital expenditures are going.

Today all of the divisions are operating under programs. The Chemicals Division is not yet, although it is getting close to it, and they all are getting part of the $50 million to $65 million a year which we are now able to spend on capital assets.

Q. Does the Chemicals Division or does any other division of the company have any authority to proceed with a capital appropriations project without having it submitted to your Capital Appropriations Committee and ultimately to you?

A. Yes, sir, the divisions have a right to proceed with their own up to $25,000 in total. It can't be pieces of 25. The project has got to be complete at $24,999.

Q. Beyond that the authority does not exist?

A. That's right.

* * * * * * *

[fol. 1960] Redirect examination.

By Mr. Freed:

Q. Mr. Osborne, you responded to Mr. Connelly with a statement that the corporation does not approve Whither Reports as such, I believe. Can you tell us whether anyone above the level of the Chemicals Division, any of the management groups which review the Whither Reports, disapprove all or parts of Whither Reports?

A. Very often, yes, sir.

Q. In between approval and disapproval, does your Management Committee or Staff Committee or yourself comment on portions of the Whither Reports?

A. The modus operandi of a Whither Report is that the

division writes up what you have seen. They send it to my staff and myself some ten days before a fixed-date meeting.

We read it over.

We are apt on occasion to meet and discuss it without the division.

Then the division makes a presentation.

At that presentation, comments are made, questions are asked, opinions are given back and forth as to the value of the whole project. Requests are made for re-study, for reconsideration, or, if the whole project looks like a sound project—and it is I who give that—approve the Whither as a program, which means that there may be a capital [fol. 1961] outlay over a four-year period in the nature of $10 million or $15 million which I then consider an approved Whither program.

That does not give the division the authority to spend. The authority to spend only comes through the CAR itself, but a program has been taken to the board by me and explained and the board's opinion sought and given as to the program as a whole, and each capital asset appropriation under that program is given a separate *vetting* just the same way as anything would be, and my hope is that 90 per cent of our new plant expenditures would be on a programed basis.

Q. In the absence of disapproval or modification of any part of a Whither Report, is the Chemicals Division free to proceed to refine and carry forward studies relating to the projects that are mentioned in Whither Reports?

A. Certainly they can do some studying if it doesn't involve expenditure, but they can't go ahead on their own and further go into engineering and large expenditure, unless they got an approval of the project.

Q. In the absence of disapproval of a Whither Report in which, for example, a sodium chlorate project is proposed and outlined, is the division free to proceed with the preparation of a capital appropriations request?

A. No, sir. It must be approved in the Whither Report or the head of the division must come to me and say, "I [fol. 1962] want to build this kind of a plant that is not in the Whither program. Will you be willing to permit us to present it to the CAR Committee, and these are the reasons," and the chances are the CAR Committee will also discuss it with them.

Some new invention may come out of research that nobody possibly could have contemplated when writing a Whither. Any number of things. Conditions can change.

Q. In light of your testimony, could you recall whether any action was taken by management with respect to the October 1959 Whither Report insofar as the sodium chlorate project was concerned?

A. There was no positive action, no.

Q. And in the normal course of corporate life what was the effect of no positive action?

A. That until somebody came to me or to the Staff Committee for transmittal to me, they could not go ahead and make any serious study until they had gotten the indication that there would be an interest.

Q. To your knowledge, did Mr. Block, who I assume was head of the Chemicals Division at that time, do anything about the sodium chlorate project in the October 1959 Whither Report between its submission in October, 1959 and the conversation which you have previously testified to in early 1960?

A. Not to my knowledge.

[fol. 1963] Q. Could you recall any indication to him of disapproval or doubt on the part of management with respect to the sodium chlorate?

A. I can't recall that at all until the thing came up for the joint venture decision sometime in late January 1960.

Q. Would the timing of the October 1959 amendment to the Whither Report have been such that in the normal course of your operations no action would be taken by management until sometime the next year with respect to the matters contained in it?

A. Not necessarily.

Q. Then can you account in any way for the apparent lapse of the sodium chlorate project from the October 1959 Whither Report to the time of your Penn-Olin conversations with Mr. Block in early 1960?

A. I can't account for it, no. It was within the division.

Q. And have you discussed with anyone else in the division what happened in this period?

A. No, sir.

[fol. 1964] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 403

EXCERPTS FROM DEPOSITION OF DEREK RICHARDSON, TAKEN ON SEPTEMBER 13, 1961

* * * * * * *

[fol. 1965] DEREK RICHARDSON, being first duly sworn by the notary public, testified as follows:

Direct examination.

By Mr. Freed:

Q. Would you state your name and your home address for the record, sir?

A. Derek Richardson, Twin Ponds Lane, Syosset, New York.

Q. What is your present position with the defendant Olin Mathieson?

A. Vice president of marketing, Chemicals Division.

Q. And how long have you occupied that post?

A. Since July 1, 1961.

Q. What was your position prior to that date?

A. Vice president, aluminum sales, for the Metals [fol. 1966] Division.

Q. Can you tell us when you began the vice presidency of aluminum sales?

A. I think the job title was effective approximately June or July of 1958, but I actually started to work in that job on what was considered a temporary basis on January 4, 1958. They loaned me, you see, from the Chemicals Division for supposedly four months for Metals to set up a sales force, and I stayed.

Q. Prior to your transfer to the aluminum branch of the company, what was your title and the scope of your duties with the Chemicals Division?

A. The last title I had was the manager, field sales, or sales manager, field sales, something of that nature, and my responsibilities were the operation and supervision over the field sales force, which is basically the district offices

and the entire sales force for the industrial chemical line.

Q. For how long had you held that position?

A. I had held that position under various titles, let me put it that way, since about—you should have told me you were going to ask me that; I don't know—since about 1952, something in that range.

Q. In your present position as vice president, market-
[fol. 1967] ing, what is the scope of your responsibilities?

A. Responsibility for all the sales of the chemical products in the Chemical Division.

Q. And do you have any responsibilities other than sales?

A. No.

Q. In what way is your job different from that of Mr. Johns, who is, I understand, the director of marketing?

A. Jimmy Johns has no responsibility for the agricultural chemical end of our business.

Q. Does the marketing of sodium chlorate come within your responsibility?

A. Yes.

Q. Since your return to the Chemicals Division from aluminum sales, have you had occasion to have any business dealings with Pennsalt?

A. No. I—no.

. . . . . .

[fol. 1968] Q. But can you recall now why Pennsalt was interested at the New Orleans meeting in having Olin rather than Pennsalt sell this Pennsalt chemical?

A. Yes; lack of coverage on their part in the South, in that section of the country.

Q. Was there a discussion of Pennsalt's coverage of that section of the country?

[fol. 1969] A. I don't remember.

Q. Then what is your previous answer based on?

A. Well, a discussion to me means an exchange of statements. Both of us knew as sales people that Pennsalt did not cover the Southern United States at that time.

Q. At the time of this meeting, was Pennsalt, to your knowledge, selling any chemicals in the Southeast?

A. If any, very few, very little. Now, when you say "selling," do you mean physical contact with people in

the Southeast? Not physical, but I mean physically calling upon people in the Southeast. I am trying to give you as accurate an answer as I can.

Q. In asking that question, what other kinds of selling activity would there be?

Q. Well, they might sell some in New York, which material might be shipped in the Southeast, you see.

Q. To your knowledge, did they physically call on customers in the Southeast?

A. To my knowledge at that time, no.

Q. To your knowledge, at the time did they contact [fol. 1970] customers at home office locations elsewhere for the purpose of making sales into the Southeast?

A. I think they did.

Q. And do you have any recollection of the amount of Pennsalt sales in this area flowing from that kind of sales activity?

A. No, I don't have any figure which I could give you at all.

Q. At the time of your meeting with Mr. Shanaman, was Pennsalt, in your eyes, an important company in the chemical industry?

A. Yes.

Q. Was their importance in the chemical industry confined, as you can now recall, to a particular section or sections of the country?

A. Yes, I would say the answer to that would be yes.

Q. And what were those sections?

A. The West, Northwest and what you might call the—an area bounded primarily by the Ohio and the Potomac on the south and the Mississippi on the west. That would be the rough area in which I think they were the strongest.

Q. In your capacity as manager of field sales, did you [fol. 1971] encounter any appreciable competition from Pennsalt in the Southern part of the United States?

A. I would say we encountered competition, yes. You will have to pardon me here. I am trying to remember at what time they put in the Calvert City—the Calvert City plant.

In our business, you see, Mr. Freed, geography has a certain bearing, and so, therefore, I would say our competition

with Pennsalt was far more strong in those areas where they had plants than in areas where they did not.

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[fol. 1972] Q. Since the time that you became vice president for marketing of the Chemicals Division, have you had occasion to consider, either as a policy or in any particular cases, the practice of reciprocity?

A. Would you repeat that, please? I am sorry.

Mr. Freed: Mr. Reporter.

(Question read.)

A. Well, let's take the latter part first: have I had any reason to consider particular cases of reciprocity? I would say yes, you always consider them because at times they do come up.

[fol. 1973] Now, as to the first part: have I had any reason to consider a policy in regard to reciprocity, my answer to that would be no.

Q. At the time you became vice president, were you acquainted with the existence of any Olin policy respecting reciprocity?

A. Well, to my knowledge, there has never been any written policy in regard to reciprocity.

Q. Has there been any corporate policy, written or otherwise?

A. I don't believe so.

Q. Has there been any policy that you are aware of for or against use of the practice in an appropriate situation?

Mr. Barnum: Perhaps, Mr. Freed, you would like to tell us what you regard as an appropriate situation?

Mr. Freed: By use of the term "appropriate," I meant situations where the company might consider the use of the practice to be appropriate.

A. Well, I think to answer your question as best as I can, we in the corporation—and I can only speak of course with those segments with which I have dealt—I have never—I have tried to avoid—let me put it that way [fol. 1974] —I have tried to avoid, in so far as we can, the subject or the fact of reciprocity.

In sales, reciprocity is far more often a problem than it is anything else, so therefore we are—the philosophy, let me put it this way, I said there had been no policy that I know of, but I said our philosophy had been there was to be no reference to reciprocity.

Does that give you a decent answer?

Q. Yes, sir. In other words, in so far as any affirmative use of reciprocity is concerned, your testimony is that this is something that Olin seeks to avoid and not mention?

A. Absolutely.

Q. Directing your attention, then, to the practice of reciprocity as your company is made aware of it either by competitors or by customers, what is your answer respecting the policy of Olin, if there is one?

A. You mean if a customer brings it to our attention?

Q. Yes, sir.

A. I would say in most cases we do nothing at all, because in the majority of cases there may not be any-[fol. 1975] thing we can do.

Q. Have any of the situations which have come to your attention involved the use by competitors of purchasing power in order to gain for those competitors an edge in the sale of chemicals to customers also solicited by Olin?

A. Oh, you hear rumors of this type, but I don't know of any specifically that I could point to.

Q. Have any situations been brought to your attention in which prospective customers for Olin products have demanded or made known their desire to become a supplier of Olin in any product?

A. No, I can't think of anything where that has occurred.

Q. What then are the types, if there are any types, of reciprocity practices which are brought to your attention, or which have been brought to your attention?

A. Occasionally a salesman will advise that he has been informed by a purchasing agent that he has to place business elsewhere because of other problems that are involved beyond just his straight sales-customer relationship, and they are very few in number, I would say, and for the most part there are sometimes indications that the purchasing [fol. 1976] agent is just trying to get away from giving the salesman more business.

Q. During your experience with the Chemicals Division, has the use of reciprocity by companies in the pulp and paper industry been a source of concern to Olin in its sales efforts?

A. Source of concern, no. I would say—no.

Q. If a salesman, sales official, of Olin encounters reciprocal pressure by a company in the pulp and paper industry under the terms of which the paper company says that it will purchase chemicals from Olin if Olin will purchase paper bags or some other form of product made by the company, do you have any practice or procedure for handling complaints of this character?

A. No. I would say nothing in the way of any system. It naturally would be reported, if that were the type of thing that might occur; and it is only natural in business, if you are friends with somebody, why, from a business standpoint you have a business relationship and you can assist them, why, it makes sense, but never to any greater extent than that.

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[fol. 1977] Q. Well, during your time with the Chemicals Division, has there been any situation of the character I described in my question where a company in the pulp or paper industry requested that Olin purchase some of its products as a quid pro quo or an inducement for the company to purchase Olin chemicals?

A. I would say to my knowledge the answer to that is no.

Q. And do you have any knowledge as to whether practices of this character have been a source of——

Mr. Freed: Strike that.

Q. —have come to the attention of the Chemicals Division within the last few years?

A. I cannot speak for the last few years.

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[fol. 1978] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 404

Baltimore, Maryland.

EXCERPTS FROM DEPOSITION OF DR. NORMAN O. STEIN, TAKEN ON SEPTEMBER 8, 1961

[fol. 1979] DR. NORMAN O. STEIN, a witness of lawful age, having been first duly sworn by the notary, was examined and testified as follows:

Direct examination.

By Mr. Freed:

Q. Dr. Stein, would you state your full name and address for the record?

A. My first name is Norman, my middle initial is O. Stein. I pronounce it Stein. And I live at No. 505 West University Parkway, Baltimore.

Q. Dr. Stein, what is your current position with Olin Mathieson Chemical Corporation?

A. I am Technical Assistant to the Vice-President and General Manager of the Chemicals Division.

Q. And how long have you held that position?

A. Well, I have held that position for nearly 11 years but with a succession of Vice-Presidents and General Managers.

. . . . . .

[fol. 1980] Q. When was the most recent occasion which your advice was solicited in connection with a sodium chlorate production facility?

A. The most recent occasion would be when Mr. Edward Block was the Vice-President and General Manager of the Chemicals Division.

Q. And what was the assignment which Mr. Block gave to you?

A. It was a rather narrow one. It was to look into the question of the availability and the price structure of electric power in the Tennessee Valley Authority Area.

Q. And do you recall when Mr. Block asked you to determine that information?

A. Well, I can't give you the exact date but it is I would think a couple of years ago.

Q. Can you by recourse to your records and correspondence isolate the date for us?

A. Oh, if I had my file I could tell you at once, yes. It was in mid 1959. That was the time, mid 1959.

[fol. 1981] Q. And at the time Mr. Block made the request to you, did he reveal to you anything about his own thinking or the nature of his concern about a sodium chlorate project?

A. Yes. He was not too verbose a man. He was rather inclined not to elaborate too much to his assistants but he did express his own general interest in examining very carefully the economic desirability of looking very closely at a sodium chlorate plant.

Q. Do you know whether there was any particular event which triggered Mr. Block's interest at this time?

A. I do not know of such event.

Q. Do you know whether at the time Mr. Block asked you to make this study there was any contemplation of a sodium chlorate facility other than as an Olin Mathieson plant?

A. I don't recall ever having discussed that or ever having heard Mr. Block give his opinion about how the plant that he had in mind if he had one was going to be handled.

Q. Do you recall any mention by Mr. Block at the time he asked you to look into the power question of Pennsalt Chemicals Corporation?

A. No, he didn't.

[fol. 1982] Q. And pursuant to Mr. Block's request, what action did you undertake?

A. I got in touch first of all with our Washington office

because this query concerned a quasi-government organization and they directed me to the proper official who would quickly give me the answers I wanted without having to go through too many intermediaries.

Q. And who was the officer?

A. This was a gentleman by the name of James R. Burdeshaw who is Chief of the Power Requirements Branch of the TVA and he is located at Chattanooga, Tennessee, which is their power headquarters.

Q. And did you then contact Mr. Burdeshaw?

A. Only on the telephone.

Q. And what was the conversation?

A. I just asked him whether power was available in the TVA area and what the rate schedules were and he promised to send the rate schedules to me.

Mr. Freed: I would like the reporter to mark as Plaintiff Stein's Exhibit 1, a letter to Mr. Stein, from Mr. Burdeshaw, dated July 20, 1959.

[fol. 1983] (The letter referred to above was marked Plaintiff Stein's Exhibit No. 1.)

By Mr. Freed:

Q. Is Exhibit 1 the response which Mr. Burdeshaw directed to you as a result of your conversation?

A. Yes.

Q. At the time you spoke with Mr. Burdeshaw did you indicate to him that your interest was in connection with a sodium chlorate plant?

A. Absolutely not.

Q. What was the extent to which you gave Mr. Burdeshaw an indication of your interest?

A. I just confined my inquiry narrowly to, have you power, and how much does it cost and its availability.

. . . . . .

[fol. 1984] Q. Dr. Stein, do you recall back in July of 1956 a discussion with Mr. Russell Hopkinson regarding

Olin's interest in sodium chlorate and ammonium perchlorate?

A. I vaguely do because Mr. Russell Hopkinson for a short while had the responsibility for new commercial ventures as vice-president of the corporation and I worked for him as a technical assistant.

Q. And what did Mr. Hopkinson tell you respecting Olin's interest in these two products?

A. Could you put your question, Mr. Freed, so that I clearly see what you are asking here? I don't think the question is germane because I think it might have been the other way because I might have come to him with something.

Q. Is that what happened? Did you have a chance meeting with Mr. Hopkinson or——

A. No, I used to work for Mr. Hopkinson as his Technical Assistant and so we were in daily contact with anything that interested Olin.

[fol. 1985] Q. And was it you who suggested to Mr. Hopkinson that Olin should seriously consider entering into the production of either or both of these products?

Mr. Barnum: You have a document to that effect, Mr. Freed, and he doesn't have it in his file. We furnished you with such a copy.

Mr. Freed: I would like the reporter to mark as Stein Exhibits 5, 6, 7 and 8 the following documents: No. 5 is a memorandum from Mr. Hopkinson to Dr. Stein, dated July 5, 1956.

No. 6 is a memorandum from Dr. Stein to Mr. Hopkinson, dated July 10, 1956.

No. 7 is a memorandum from Mr. Hopkinson to Mr. J. O. Logan, dated July 13, 1956.

And No. 7 is a memorandum from Mr. Logan to Mr. Hopkinson, dated July 18, 1956.

(The correspondence referred to above were marked Plaintiff Stein's Exhibits No. 5 through 8, respectively.)

By Mr. Freed:

[fols. 1986-1988] Q. I show to you these four exhibits, Dr. Stein, and ask you if they refresh your recollection concerning the manner in which, or the reasons for which, this series of memoranda on the subject of Olin's interest in ammonium perchlorate and sodium chlorate came up?

A. Well, Mr. Hopkinson had the responsibility for suggesting to the corporation areas of commercial development which should be pursued by Olin and I was his Technical Assistant so he sends a very laconic remark here like, why should not Olin make two chemicals and in this correspondence you can see that I gave him a technical answer to his questions, showed who was presently in the business and where our advantages and disadvantages would lie if we would so engage.

Q. Do you know, sir, of any event or other reason which prompted the awakening of interest at this time on Mr. Hopkinson's part in these two chemicals?

A. No. I can only surmise this is in the area of military requirement, missiles and rockets and so on and this was a live issue at that time.

Q. Do you know today, sir, what the extent of Olin's interest in ammonium perchlorate is?

[fol. 1989] A. I wouldn't have the access to that information because it is in another division. We had another division dealing with that fact, an Energy Division.

Q. So you do not know today whether Olin is interested in that chemical?

A. No.

Q. And in respect to sodium chlorate are you familiar with the laboratory work which is going on in connection with sodium chlorate cells?

A. I am aware that we have a continuous program of laboratory research in the electrochemical area in which the sodium chlorate falls.

Q. And do you have any specific knowledge in respect to Olin's purpose today in conducting sodium chlorate research in the light of its existing joint venture with Pennsalt?

A. I am afraid this question is not clear to me because in this last sentence you brought in an aspect which I am not—it is not my field or province to go into.

Q. Excluding then from my question any consideration of the Penn-Olin Company——

[fol. 1990] A. Yes.

Q. —can you tell us if you know what Olin's purpose is today in conducting further research in the area of sodium chlorate?

A. Well, I mean we are in the electrochemical field, we manufacture sodium chlorite, sodium chlorate is the precurser of that. We are heavily involved in bleaching techniques with all industries that use it such as the pulp and paper and textiles and so we have a constant and continuous interest in knowing all about sodium chlorate and keeping abreast of the technology of sodium chlorate.

Q. Are you familiar with the proposal made in the early part of 1960 that Olin enter into the production of sodium chlorate at Niagara Falls as part of its sodium chlorite production operation?

A. This matter has been brought up as long as I have been with Olin Mathieson. It has gone up and down, up and down. My personal consideration was it was considered to be too small a scale to be economically viable.

Q. And the status of that proposal today is what, sir?

[fol. 1991] A. I would say it is the same.

Mr. Barnum: Up or down?

A. Yes, down.

By Mr. Freed:

Q. Are you familiar, Dr. Stein, with the status of Olin's research and laboratory work today on the platinized titanium anode for sodium chlorate cells?

A. Not in detail. I just know that there is such kind of work going on.

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[fol. 1992] IN THE UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 405

Baltimore, Maryland.

EXCERPTS FROM DEPOSITION OF CECIL L. WILLIAMSON TAKEN ON SEPTEMBER 6, 1951

* * * * * * * *

[fol. 1993] CECIL L. WILLIAMSON, a witness of lawful age, having been first duly sworn by the Notary, was examined and testified as follows:

Direct examination.

By Mr. Copley:

Q. Would you state your name and address for the record, sir?

A. My name is C. L. Williamson. I live at 24 Indian Lane, Baltimore 10, Maryland.

Q. What is your present position with Olin Mathieson?

A. Present position is Assistant to the Vice-President and General Manager.

Q. Have you been in the recent past Manager of the [fol. 1994] Special Projects Division of Olin Mathieson Chemical Corporation?

A. My title was Manager recently. Recently my title was Manager of Special Projects but it was not a division.

Q. And so your present position as far as title is concerned is as you first stated, Assistant to the Vice-President and Associate General Manager?

A. My present position is.

* * * * * * * *

[fol. 1995] By Mr. Copley:

Q. Would you read the one paragraph into the record, sir?

A. "I am attaching a copy of the deposit slip covering the March 22nd deposit to the Penn-Olin account of $248,-

000. This represents $124,000 from Pennsalt and $124,000 from Olin, against which 124 shares of Penn-Olin stock should be issued to each company in accordance with the regular procedure. Yours very truly."

Q. Would you tell us what the reference to regular procedure refers to?

A. I would say it is a trite expression.

Q. Did the officers or directors within Olin establish a procedure whereby the issuance of stock would be accomplished?

A. They did not. Business action took place before the thing was set up. It is just that simple.

Q. Did you on your own set up a procedure whereby the stock of Penn-Olin could be issued to the parents?

A. I exercised the judgment that I saw fit in issuing the stock.

[fol. 1996] Q. Did you set up a procedure for the issuance of stock?

A. No.

Q. Who made the decision not to issue any Penn-Olin stock after the issuance of the original two shares?

A. After the——

Q. After the issuance of the initial two shares.

A. I did.

Q. When did you make that decision?

A. Sometime, I would say, late in the fourth quarter of '60.

Q. Can you give us the month in which you made the decision?

A. My recollection, if it is correct, it was in November of 1960.

Q. Did you talk to anyone in Penn-Olin?

A. Pardon me?

Q. Did you talk to anyone in Penn-Olin management about not issuing stock?

A. I am not sure. I may have but I am not sure.

Q. Did you talk to anyone in Olin management about [fol. 1997] not issuing stock?

A. Yes.

Q. With whom did you talk?

A. General Manager, Mr. Block.

Q. What was the reason for your talking to Mr. Block?

A. Because of the decision I had made. I was informing him of the conclusion I had reached and what action I had taken.

Q. In other words, the decision not to issue had been made prior to your conversation with Mr. Block?

A. In my mind, the decision was made obviously. I implement policy. I don't make it.

Q. What did Mr. Block say?

A. He was in accord with my conclusions.

Q. Had he directed you previously not to issue stock?

A. He had not.

Q. Had anyone in the Olin Mathieson or Penn-Olin directed you?

A. They had not.

Q. Did you talk to anyone besides Mr. Block about the decision not to issue stock?

[fol. 1998] A. Without a doubt, I possibly may have told, mentioned to Mr. Logan in just the course of conversation.

Q. Did you ever talk to Mr. McWhirter prior to your decision not to issue?

A. I believe that I talked to Mr. McWhirter at the time of this decision, yes.

Q. At the time or subsequent or prior to the decision?

A. At the time of, I said.

Q. What did Mr. McWhirter say?

A. Well, I don't recall any, shall we say, strong objections.

Q. What did you say to him?

A. I don't recall specifically other than the fact that until we got this—until we got the land problem squared away and in the light of this suit and so on and so forth, I couldn't see any sense of issuing stock because it had thrown the whole program in a cocked hat.

Q. Did you ever talk to Mr. O'Connell?

A. Who?

Q. Mr. O'Connell, the corporate finance officer of [fol. 1999] Olin Mathieson, about this decision?

A. Do we want to pin this down to a date?

Q. If possible.

A. What I am trying—what I am trying to get to, sure I have talked to Mr. O'Connell about that matter. As

Secretary of Penn-Olin, I gave each of the parent corporations a certification.

Q. Did you talk about a certification of the issuance of the initial two shares?

A. No, a certification as to how much had been received and the stock subsequently in due time as the financial picture was cleared would be issued.

Q. Well, prior to the decision not to issue stock, did you talk with Mr. O'Connell about that?

A. I don't recall that.

Q. Did legal counsel of either Penn-Olin or Olin give you instructions not to issue stock?

A. No.

Q. Did you discuss the problem with them?

A. Without a doubt, I mentioned it to our internal counsel.

[fol. 2000] Q. Would you elaborate on the reasons why stock was not issued? I believe you mentioned a land problem and this suit.

A. We were waiting for a complete definition of the land to be conveyed and the deed therefor and about that time—and about that time is when we got the first—if I am right, John—I think it is in late November that we got the first action as far as this suit is concerned. Consequently, it completely precludes commercial financing.

Q. By commercial financing, are you referring to loan companies and banks as opposed——

A. Not loan companies, no.

Q. Are you referring to companies which——

A. I am talking about commercial banking institutions.

Mr. Copley: Would you read back the witness' prior answer?

(The answer referred to above was read by the reporter.)

By Mr. Copley:

Q. Excluding considerations of obtaining commercial [fol. 2001] financing, what were the reasons that stock was not issued and confining yourself to the land problem.

A. Because I decided that until the land was cleared

up and the property properly conveyed, that we would just hold up on our end on issuing the stock. It was my decision and my decision alone, period.

Q. Was there any question as to the value of the land?

A. I wouldn't say so, no.

Q. Was there any question as to the amount of land to be transferred?

A. No. We talked—there was a meeting of the minds on the amount of land, just a matter of how it would be handled.

Q. Well, what did you base your decision with reference to the land problem on? What I am getting at is, did you hold up your decision merely because the papers on the land had not been signed?

A. No. That was not the total reason or the—yes, the total reason. In other words, the land wasn't squared away and as I said before, this action I believe started in [fol. 2002] late November or sometime in December of '60 and at that time, I think there was all of $75,000 apiece put in.

[fol. 2003] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 406

Baltimore, Maryland.

EXCERPTS FROM DEPOSITION OF DR. BRUNO H. WOJCIK TAKEN ON JULY 26, 1961

* * * * * * *

[fol. 2004] Direct examination.

By Mr. Freed:

Q. Dr. Wojcik, would you state your name and address for the record?

[fol. 2005] A. My name is Bruno H. Wojcik, the address is 1018 Rolandvue Road, Ruxton 4, Maryland. That Rolandvue is spelled R-o-l-a-n-d-v-u-e, all one word.

Q. What is your present position with the defendant, Olin Mathieson Chemical Corporation?

A. Just recently I have been given the title of Scientific Adviser.

Q. When did you receive that title and what was your immediately preceding position with the Company?

A. This title was given to me within the last approximately two weeks. Previous to that, I was acting as Manager of Quality Control.

Q. Your position as Manager was as a member of the Chemicals Division of Olin?

A. As acting Manager, yes.

Q. Dr. Wojcik, how long have you been employed by Olin or its predecessor company?

A. Approximately eleven years.

Q. And can you state when and in what position you first came to Olin or its predecessor?

A. I became an employee of Mathieson Chemical Cor-
[fol. 2006] poration in September of 1950 as Associate Director of Petro-Chemical research.

Q. Can you tell us when you first performed any duties in Mathieson in connection with sodium chlorate?

A. Oh, approximately six, seven years ago.

Q. And under what circumstances did that come about?

A. A desire to evaluate our position for the production of sodium chlorate.

Q. Can you fix any date on which you first took an interest in your employment with Mathieson in the sodium chlorate field?

A. I can't recall for sure, but I would say it was between 1954 and 1955.

Q. At that time what was your position with the Company?

A. I was then Associate Director, Chemical Research.

Q. Where were you stationed at that time?

A. Niagara Falls, New York.

Q. When your duties in connection with sodium chlorate first began, did you acquaint yourself with the history of Olin's interest in this chemical?

[fol. 2007] A. In a cursory manner, yes.

Q. And can you tell us what that history was?

A. I knew that Mathieson was interested in, one, producing sodium chlorate and, two, promoting the use of Mathieson's process for the conversion of sodium chlorite to chlorine dioxide for pulp paper bleaching as well as other uses.

Q. What efforts had been made prior to the time that you assumed sodium chlorate duties to explore the possible production of sodium chlorate as you recall the history you acquainted yourself with?

A. There were a few literature studies made as to the potential outlets and growth of sodium chlorate.

Q. Had Olin prior to this time done any development work in the production of sodium chlorate?

A. I do not recall this.

Q. Beginning with your own sodium chlorate duties, beginning in 1954 and 1955, can you tell us what Olin's efforts were in the field of sodium chlorate development or production?

A. As I stated previously, we constantly tried to keep abreast of the literature and periodically we would make [fol. 2008] evaluations as to the potential growth of sodium chlorate and then we would also submit to management proposals for research studies involving production of sodium chlorate.

Q. Were the production studies initiated by you or were they initiated as a result of the order of someone else in the Company?

A. I certainly was in a position to initiate them and I cannot answer whether in each instance I did, myself, or with the help of somebody else.

Q. In so far as the first efforts to develop a sodium chlorate process are concerned, is it your recollection that you initiated those efforts or those efforts were a result of the request of someone else in the Company?

A. Perhaps both.

Q. Who else in the Company was interested or who might have consulted with you at that time about the advisability of this development work on sodium chlorate?

A. Certainly some of my associates who had a good background in electrochemistry and could be technical service people or even management, itself.

Q. In each of the three classes you have just mentioned, [fol. 2009] can you tell us who the leading personalities in Olin were among your associates, among technical service people and among management who expressed an interest in developing Olin solium chlorate capabilities?

A. I am not sure that I can recall and if I have to answer it more positively, then I would have to put myself on a spot. Every so often we would review our research activities and realize we had a potential interest in the manufacture of sodium chlorate and I would ask some of my associates and others to furnish me information which would help in building a case to present to management that we ought to do some work on the development of a process for the manufacture of sodium chlorate.

Q. And did you build a case?

A. Yes, at one time we had learned through literature of a new development on a new type of an anode, a platinized titanium anode and after an economic evaluation I figured we had a case, a research project.

Q. When did the development of that anode come to your attention?

A. I am not certain of the date but I am guessing now [fol. 2010] somewhere between '55 and '56 or it could be '57. '56-'57.

Q. When you completed your work on the anode, did you make a recommendation to management?

A. Yes, I did. I recommended to management that we build a prototype cell on which to confirm our laboratory findings.

Q. And was such a prototype cell built?

A. No, it wasn't.

Q. Has it ever been built?

Mr. Barnum: By Mathieson?

Q. By Olin Mathieson Chemical Corporation.

A. No, not to my knowledge.

. . . . . .

[fol. 2011] By Mr. Freed:

Q. Dr. Wojcik, during the period of 1957 to 1960, did your duties include all research work that was going on in the soduim chlorate yield by Olin?

A. My responsibilities on sodium chlorate process development ended about 1960, sometime in 1960.

Q. Can you recall under what circumstances those responsibilities in the research of sodium chlorate ended?

A. Yes, about that time there was a reorganization.

Q. Are you referring now, sir, to the reorganization that took place in 1960 which led to your appointment as being in charge of Quality Control for industrial chemicals?

[fol. 2012] A. Quality Control and Director of Inorganic Research. I no longer had the responsibility for the development phase of the work pertaining to sodium chlorate.

. . . . . .

[fol. 2013] Q. Dr. Wojcik, at the time Olin made the decision in late 1959 or early 1960 to embark on the sodium chlorate project with Pennsalt, did you participate in any of the discussions with Mr. Logan or Mr. Block or any of the other managerial personnel of the Company with respect to that prospective project?

A. No, I have not.

Q. Was your opinion ever asked by the management of Olin on the question of the relative desirability of Olin's

proceeding jointly with Pennsalt or proceeding in some other manner to enter the sodium chlorate business?

[fol. 2014] A. No, it has not been asked.

Q. In preparation of your testimony today, sir, have you reviewed the series of Electrochemical Survey Reports by Olin in the sodium chlorate field going back to 1955?

A. I have reviewed some.

. . . . . .

[fol. 2015] Mr. Freed: I might state for the record that [fol. 2016] the copy of report 501 which was furnished to the Government has a stamp in the upper right hand corner which reads B. H. Wojcik, October 27, 1955, Niagara Falls.

On page 2, the top of page 2 of that report, is the statement, "The lower figure for this estimate is based on the fact that Olin Mathieson Chemical Corporation will build the sodium chlorate unit at the site of an existing plant."

Can you enlighten us, sir, on any of the background for that statement in terms of discussions at which you were a party or in which that came to your attention regarding Olin's intentions to build a sodium chlorate plant at the site of another of its plants?

A. The only reason that we would give serious consideration to building a sodium chlorate plant at the site of one of our existing plants would be one of economy where we had the services, where we had the salt available, where we had experienced people in the electrochemical background.

Q. Were factors such as you have just indicated discussed within Olin prior to the time that this report was written, to your knowledge?

[fol. 2017] A. To the best of my knowledge, this could well be so. Whenever we consider putting up a new facility for the production of a new chemical, we always take into account the location based on existing plants and any savings that may result from putting up a unit.

Q. Can you recall at the time of this report what the state of thinking was in your particular branch of the Company with regard to Olin's entry into the production of sodium chlorate as refreshed by this report?

A. It was no more than the need for giving serious consideration to the production of sodium chlorate based on

the fact that we were already buying and using a fair quantity for the production of sodium chlorite and that we were promoting the Mathieson process of the generation of chlorine dioxide which uses sodium chlorate.

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[fol 2018] Q. Can you recall in general during this period of 1955 whether you were aware of any instructions or dispositions on the part of Mr. Logan to advance Olin's interest in the sodium chlorate field?

[fol. 2019] A. On various occasions the subject was brought up for discussions. I can't tell you whether it was by Mr. Logan or myself. The facts are that I constantly saw a need to evaluate carefully our entering the production of sodium chlorate for reasons already cited and whenever I saw anything in literature that would lead me—had a chance of production sodium chlorate, I would not hesitate to call it to Mr. Logan's attention or to any of my associates.

Q. And do you recall during this period of 1955, what Mr. Logan's reaction was to your suggestion and your proposal about producing sodium chlorate?

A. He was always of an encouraging nature but he warned us that we would have to have our economics picture well in hand to be able to sell management the possibility of our producing sodium chlorate.

Q. Dr. Wojcik, would it be a fair characterization of the series of reports in the sodium chlorate field which were put out by the Research and Development Department that these reports were an effort by your department to determine the economic feasibility of Olin's entry into sodium chlorate production?

[fol. 2020] A. Basically, that is correct.

Q. Are there any respects in which it isn't correct that you can point to? Are there any qualifications which you would like to make to the general statement which I made?

A. May I have the question read back to me, please?

(The question referred to above was read by the Reporter.)

A. No, there wasn't any.

Q. In your own view of these Electrochemical Survey

Reports did you and your Research and Development Department ever demonstrate to the satisfaction of you and your own department the feasibility, economic feasibility, of Olin's entry into the production of sodium chlorate?

A. At the laboratory stage, yes, and I would like to qualify that by saying that most of our studies, and here I am referring to economic studies, were based primarily on what was available in literature plus what little bit we did in the laboratory.

Q. To what extent were your studies viewed as a rule deficient in respects which would be necessary to consider before an over-all determination of economic desirability [fol. 2021] could be made?

A. No practical experience on a large scale or through a pilot plant unit.

Q. What steps would have been necessary to take to establish a pilot plant unit?

A. We would have to prepare a program, detailed in every respect, including costs and submit that to management for approval.

Q. Was any such recommendation or report ever made?

A. I cannot recall offhand.

Q. Do you recall whether you ever urged Mr. Logan or other members of management to embark on a pilot plant operation?

A. It's quite possible that I had discussed the matter with Mr. Logan as well as perhaps others.

Q. And do you know why management decided against a pilot plant operation during this period?

A. Basically because our economic studies did not encourage management to go through with whatever we had proposed simply because even whatever we came up with we could not be certain that this was so since most of our [fol. 2022] information was based on literature studies. I am referring to such things as yields, corrosion of the equipment, consumption of power, the consumption of the carbon anodes. If you check the literature you will see that they specify ranges there. One concern will say so-and-so and another one will say thus-and-so and we would use the best information that was available at the time or even averages.

Q. Were these doubts, were these open questions that you

have pointed to, unique in your experience in the chemical field in so far as a company's exploration of new products or new chemicals is concerned?

A. Not at all, sir, this is quite common.

Q. Were there any unusual factors about sodium chlorate that posed more of a barrier with your experience in Olin with them, posed more of a barrier to Olin's further exploration in pilot planting than most other chemicals that you have had experience with?

A. In general, I would say no, but there were a few specific items that bothered us no end, power requirements, carbon anode consumption, corrosion.

Q. Are power requirements an important element in [fol. 2023] your consideration of where to locate a chlorine or caustic plant?

A. Yes, indeed.

Q. Are corrosion problems unusual in your efforts to develop new chemicals and new compounds?

A. This is one factor we are always concerned with and it varies depending on what you are going to produce.

Q. Dr. Wojcik, do you recall in the middle of '56 receiving a memorandum from Mr. Walter Northgraves concerning prospective sodium chlorate customers in the pulp and paper industry?

A. Offhand, I do not recall but most likely I had received it.

Q. I would like the Reporter to make this Plaintiff's Wojcik Exhibit 1 and for the record this is a memorandum from W.W.N. to Dr. B. H. Wojcik dated May 8, 1956, entitled sodium chlorate—Market Survey—Pulp Industry. This document has been given the documentation Olin C 113.

(Plaintiff Wojcik Exhibit No. 1 was marked for identification.)

By Mr. Freed:

[fol. 2024] Q. Dr. Wojcik, as a result of your reading of Plaintiff's Exhibit 1, do you recall the circumstances which led Mr. Northgraves to send this particular memorandum to you in 1956, and I direct the attention prin-

cipally to Mr. Northgraves' statement that we could probably locate a plant to reach all mills listed.

A. I don't recall the exact extent as to why that report was written but it was certainly within my province to ask for such a report knowing that we were giving serious consideration to the production of soduim chlorate.

Q. Was it your best recollection that you or someone in your behalf had asked Mr. Northgraves to determine the possible market for a sodium chlorate plant?

A. It was most likely I that asked him.

Q. Do you recall what use, if any, was made of the information transmitted to you by Mr. Northgraves particularly in line of the fact that copies of this memorandum were also sent to Mr. Logan and Mr. L. E. Russell?

A. In the first case it is quite common to inform people in other areas of how our thinking was going and if I recall correctly, Russell at that time was in charge of [fol. 2025] market developments so it would be only natural for him to get a copy. On the other hand, Mr. Logan quite often got copies of our surveys just for general information. That particular report helped me to establish the size of a plant that we ought to think about putting up and as I recall the figure of 40 tons per day was one that we used in some of our evaluation studies because of what was noted in Mr. Northgraves' report.

Q. On the basis of 40 tons a day, how would you convert that figure to an annual capacity figure for a sodium chlorate plant?

A. We usually multiply that figure by 350 days.

Q. Then is it correct, sir, that on the basis of Mr. Northgraves' report you geared your thinking to a plant in the range of 14,000 tons per year?

A. That sounds correct to me.

Q. Following receipt of Mr. Northgraves' report, do you recall any conversation with Mr. Logan or Mr. Russell concerning further efforts or efforts in a different direction to explore Olin's potentiality in the sodium chlorate field?

A. I do not recall.

[fol. 2026] Q. There is a handwritten note, on the bottom of this document, which came from Mr. Logan's file which contains the words, "Review for Brunswick and other location." Does your examination of the notes made on

that document in any way refresh your recollection as to conversations you may have had with Mr. Logan or instructions that may have been given concerning the direction of Olin's efforts following that report?

A. No, it does not and I would like to add that quite often after Mr. Logan sees a report such as this, he may write across it as noted here without necessarily discussing the subject matter with anyone.

Q. But it is your testimony that whether he discussed it with anyone else there was no discussion that you recall concerning a new direction in your sodium chlorate exploration efforts following Mr. Northgraves' report?

A. That's correct as far as I can recall.

Q. In what way did this report of Mr. Northgraves influence your subsequent activities in the Research and Development Department aside from advising a figure of 40 tons per day as the likely capacity of a plant.

[fol. 2027] A. Only in so far as it gave us some idea as to the size of the unit that we should put up and on which to make an economic evaluation and to be mindful of the need to watch the sodium chlorate production.

Q. Do you recall whether the figures furnished by Mr. Northgraves raised or lowered your sights as far as the size of an Olin sodium chlorate plant were concerned?

A. I don't remember whether prior to that report I had any idea of the size of a plant we should put up or we should consider putting up.

Q. Then this report filled a gap in Olin's prior knowledge as to the right demand for sodium chlorate, is that correct?

A. Not necessarily demand but it certainly showed us the size of the unit that we, ourselves, ought to consider putting up.

Q. The information furnished by Mr. Northgraves indicated a possible demand for sodium chlorate in the amount of 20,750 tons in 1956, increasing it to 45,000 tons by 1959. Can you tell us how you calculated the percentage, the proportion of its capacity which Olin was likely to receive [fol. 2028] on the basis of these figures.

A. As a rule of thumb, we use 10 percent of the market.

Q. As I would read this document, 10 per cent of the market would be either 2,000 tons in 1956 or 4,500 tons in

1959. I wonder if your review of that document would enlighten us a little more as to where the 40 tons a day figure came from, the basis on which it was computed.

A. In the first case, one never builds a plant just to meet what he thinks is going to be the demand. You always allow for possible growth. In the second case we have to take into consideration the area where you are going to locate your plant. If there is a higher demand for that product in that area, chances are good that you may get more than the 10 per cent figure that I mentioned of the total demand for the product.

Q. The figure which you have mentioned, approximately 14,000 tons per year would have been one-third of the demand expected in 1959, three years after this survey. Was a one-third figure used or can you recall how, what the thinking process was, in Olin as you were familiar with it [fol. 2029] which led to the choice of the 14,000 ton plant against the industry demand shown by Mr. Northgraves' report?

A. Yes, I believe there were some extenuating circumstances that led us to consider putting up a larger unit. We were familiar with the increased activities in the production of perchlorates which are made from sodium chlorate and it was our feeling then that we ought to provide some excess capacity to have available for perchlorate manufacture for some future time.

[fol. 2030] Q. Dr. Wojcik, were there any other extenuating circumstances apart from the perchlorate process?

A. No, there were not.

Q. Dr. Wojcik, I would like to direct your attention now to a memorandum written on November 26, 1956 by W. C. Gardiner to you, entitled, U.S. Chlorate Patents Now In Force, and ask you first whether you recall this patent report by Dr. Gardiner?

A. I believe I do.

Q. Can you enlighten us as to the patent problems, if any, faced by Olin in considering sodium chlorate production?

A. As a rule, we never undertake the production of any new product without examining the patent art to make sure we are not infringing on any existing patents.

Q. Then, the purpose of this report was to clear any

patent problems that might exist before Olin would embark more seriously on sodium chlorate production, is that correct?

A. I think that is so; I am not certain though.

Q. Do you recall, whether as a result of the patent studies which were made, Olin encountered any significant patent [fol. 2031] barriers to its sodium chlorate exploration activities?

A. No, sir, I do not recall any serious patent barriers.

Q. If there had been any barriers, would you likely know about them?

A. Quite likely.

Q. Then, may we conclude, patents were never a problem or patents turned out not to be a problem in Olin's studies and efforts in the direction of sodium chlorate production?

Mr. Barnum: Excuse me; you may draw any conclusion you wish.

Mr. Freed: I agree, Mr. Barnum; Dr. Wojcik may draw any conclusion.

A. We did not conclude that on the basis of a new development that I have mentioned previously, platinized titanium anode development which we were led to believe ICI may have some patents in that area; please understand, this is something new and does not necessarily refer to the usual method of production for sodium chlorate where carbon anodes are used.

Q. In the production of sodium chlorate today, are [fol. 2032] platinized anodes used or carbon anodes being used by all producers, to your knowledge?

A. To the best of my knowledge, I do not know whether any platinized titanium anodes are being used.

Q. Do you know whether Olin in its own activities or Penn-Olin in the design of its production plans are using platinized anodes?

A. To the best of my knowledge, I do not know.

Q. You do not know either whether Olin has or is using them or whether Penn-Olin would use them?

A. If you are referring to using them for the production of sodium chlorate, the answer is no, they are not used at the present time; as far as Penn-Olin is concerned, I do not know and I would doubt very much that plans have been made for the use of platinized titanium anodes.

Q. To your knowledge, is the availability of the platinized anodes limited because of the patent problem or is it another problem or other factors which have caused their nonuse?

A. I do not think the patent limitations are as serious as the lack of complete knowledge regarding these platinized [fol. 2033] anodes.

Q. Regarding the manner in which they will work and whether they will be reliable?

A. Yes, yes, that is correct.

Q. Dr. Wojcik, I would next direct your attention to Electrochemical Survey Report H-35.502, dated July 26, 1956, entitled, Production of Sodium Chlorate, and this particular document is marked Olin C-110a, and on the face of the report, distribution is shown to Mr. Logan, yourself and a group of other people in the company and I ask you whether you are familiar with the contents of that report?

A. I certainly was at one time.

Q. Have you reviewed it in connection with preparations for your testimony today?

A. In a cursory manner, yes.

Q. Do you recall the circumstances under which this report 502 was undertaken?

A. Not exactly but I might have requested that that be made.

Q. Following, as it does, by two months or so, Mr. Northgraves' report previously referred to as Plaintiff's Exhibit [fol. 2034] No. 1, do you recall whether there was any connection between Mr. Northgraves' report and the instructions to proceed to prepare this report?

A. I don't recall offhand but quite likely there were connections; in other words, I was trying to get first of all an idea of the size of the plant we might build and secondly, the types of units that are being used for the production of sodium chlorate cells in particular.

Q. When you referred to, cells, in particular, is the sodium chlorate cell the key to the whole production process, at least from a technological and financial point of view?

A. Basically, this is correct.

Q. I wonder if you can explain for the record and for the use of laymen just what a sodium chlorate cell is and what the technological problem has been in your experience with the development work on sodium chlorate cells?

A. A sodium chlorate cell is an apparatus in which so-

dium chloride is electrochemically converted to sodium chlorate—excuse me—I am sorry, I am lost; can I have the question reread?

(Whereupon, the pending question and answer referred [fol. 2035] to above was reread by the reporter.)

A. The problems confronting us was a limited knowledge of the chlorate cell wherein I pointed out previously the life of the cell based on corrosion, the carbon anode consumption; I ought to add also, yields of desired product.

Q. And, can you state for us what Olin's objective technologically speaking was in its development efforts, what did it know and what was it seeking to learn or develop?

A. From a practical point of view, we knew very little about chlorate cells and, I repeat, most of our information came from the literature and we were trying to pinpoint the cell which in our opinion would give us the best yield, the best life, less maintenance costs and so on which to start our laboratory studies.

Mr. Freed: I wonder if you'd read that answer back to me.

(Whereupon, the pending answer referred to above was read by the reporter.)

By Mr. Freed:

[fol. 2036] Q. At the time you left this branch of Olin's activities and you left your responsibilities for sodium chlorate cell development, how far had that development process proceeded?

A. We had actually constructed and tested the small laboratory cell principally for use with the platinized titanium anodes.

Q. And, what was the performance of that cell in terms of yield and corrosion and the other important factors that you were looking for?

A. I do not recall in detail but in general, they were good enough for us to want to explore it further.

Q. And what would further exploration have involved, what would the next step have been?

A. The construction of a prototype cell.

Q. And who would be—would a prototype cell differ from a laboratory cell that you had constructed?

A. A prototype cell in my opinion is a unit large enough for commercial use; in other words, a full scale cell that we could put right into a plant.

Q. Has Olin proceeded with a prototype cell?

[fol. 2037] A. Olin itself has not proceeded with the construction of a prototype cell; we did however seek help from others in the construction of such a unit.

Q. And by, others, who do you have in mind?

A. Vickers-Krebs, Montreal, Quebec.

Q. And, did Olin enter into arrangements with Vickers for the construction of the prototype cell?

A. No, sir, we never actually finalized any arrangement or agreement with Vickers-Krebs.

Q. Can you tell us why, to your knowledge, you did not, Olin did not proceed to finalize those arrangements?

A. I am not certain that I know the exact reason; we had some difficulty trying to come up with an agreement that could be acceptable to both parties.

Q. Were there any other reasons?

A. It seems to me that at the state where we were still pursuing a connection with Vickers-Krebs, I was told that this was no longer possible because decisions were made to form Penn-Olin.

Q. And who told you of that decision?

A. To the best of my recollection, it was the late Mr.

[fol. 2038] E. Block.

Q. And, do you recall when Mr. Block gave you that information?

A. I am not certain but it might have been sometime in late '59.

Q. Do you recall where this discussion with Mr. Block took place?

A. I do.

Q. Where was it?

A. In his office.

Q. In Baltimore?

A. Yes.

Q. Was anyone else present during this discussion?

A. I don't recall anyone else being present.

Q. Can you tell us about how long the discussion lasted?

A. On this specific subject?

Q. Yes, sir.

A. A few minutes.

Q. Can you tell us what Mr. Block told you about the decision which had been made?

[fol. 2039] A. All he told me at the time was that a decision had been made to form Penn-Olin and we would no longer pursue any joint venture on the development of a cell containing platinized titanium anodes with Vickers-Krebs.

Q. Why was this particular limitation on Olin's activities directed? Why did Mr.—do you recall whether Mr. Block said anything why he wanted that particular project terminated?

A. I do not recall any specific reasons given for the determination—termination by Olin.

Q. With the exception of a Vickers-Krebs arrangement and platinized titanium anodes, did Mr. Block say anything with respect to the other development work then going on by Olin in the sodium chlorate field?

A. No. I do not recall.

Q. Was there any other development work then going on?

A. No; when you speak of development work, you of course are referring to the development of a sodium chlorate process, there was not to my knowldege anything else going on in the development area.

Q. Did you—do you recall asking Mr. Block why the [fol. 2040] Penn-Olin decision had been made?

A. No, sir, I did not ask him why.

Q. Do you recall him saying anything about why Olin had chosen to proceed with Pennsalt rather than by any other route?

A. If you had had the privilege of knowing Mr. Block, you would have realized he seldom gave you reasons why certain decisions were made.

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[fol. 2041] By Mr. Freed:

Q. At any time, subsequent to your conversation with Mr. Block, do you recall hearing or reading of the reasons why Olin made the decision which Mr. Block delivered to you?

A. I vaguely recall seeing someone; the fact that—that

timing was such, we had to go ahead on sodium chlorate production now or we may lose a position in the market, in a growing market; if we had proceeded with our development that we had in mind with Vickers-Krebs, it would have taken perhaps as much as two years before we could tell management that we had a cell capable of making chlorate with good yields and economically.

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Q. In your own view, at that time, in late '59, when you [fol. 2042] had the conversation with Mr. Block, what was your opinion of Olin's ability, capability to engineer and construct a usable, a commercial sodium chlorate cell?

A. What yardstick would you use, regarding our capability? If life depended on it, we could have made sodium chlorate but whether we would make money doing it that was something else.

Q. Well, what was your own view with regard to the status of Olin's development work as being close to or far from achieving a successful cell?

A. It looked promising.

Q. To your knowledge, were there any people in the Olin organization who disagreed with your view that it looked promising?

A. No; there were no people that disagreed but there were a number that felt we did not have enough information on which to make a sound decision.

Q. Who were the people who helped you?

A. Mr. Block especially.

Q. During this period of time, was Vickers-Krebs already engaged elsewhere in the production of sodium chlorate?

[fol. 2043] A. I do not think Vickers-Krebs was saying—was involved in the production of sodium chlorate but they had put up a number of sodium chlorate plants based on information that they would obtain from Krebs in France.

Q. From your knowledge of the sodium chlorate business, and technology, are the—at this time in late '59, were the sodium chlorate plants which had been constructed by Vickers-Krebs successful commercial operations?

A. I don't know for sure but I would imagine they were.

Q. Did Vickers-Krebs enjoy a good reputation in the

sodium chlorate industry as a builder of commercially successful, of commercially sound plants?

A. In our opinion, yes.

Q. Can you tell us then why the view was held by people in the Olin organization that a substantial additional period of time would be required to develop a sodium chlorate cell with Vickers-Krebs when Vickers was already in the business of constructing going plants?

A. Through the use of platinized anodes, our evaluation studies show that there was an excellent chance of our [fol. 2044] producing sodium chlorate at a cost lower than whatever the literature studies revealed and it was with this end in view that Research and Development felt we should proceed with the studies involving the platinized anodes.

Q. Your aim then was to come up with a cheaper method than was then in existence for producing sodium chlorate?

A. That is correct.

Q. To your knowledge, does the facility which is now under construction for Penn-Olin embody such a cell, such cost-reducing factors?

A. I know nothing about what was decided regarding the cell and the installation and so on and so forth.

Q. Would Mr. J. L. Wood be familiar with this matter?

A. It's possible.

Q. Who, to your knowledge in the Olin organization would have the best information about the technology adopted in the Penn-Olin plant?

A. Perhaps Mr. Wood.

Mr. Freed: Off the record.

(Discussion off the record.)

By Mr. Freed:

Q. Returning, Dr. Wojcik, to the report we referred [fol. 2045] to earlier as Electrochemical Survey Report 502 on July 26, 1956, the first paragraph of the summary on page one states that the general position of four U.S. sodium chlorate producers is discussed with special emphasis on Pennsylvania Salt Manufacturing Company. Do you recall now why special emphasis was given to

Pennsalt among the various producers in the preparation of this?

A. I do not recall exactly but if my memory serves me right, it could have been because Pennsalt put up the newest installation for producing sodium chlorate and we would of course want to look at that pretty carefully to see if they had done anything unusual.

Q. In the last paragraph of this summary, on page one, there are in effect two recommendations, the first is that know-how be purchased from Pennsalt, Electro Reduction or other producers if immediate construction of a plant is required; the alternative stated here is that if time for development is permitted, an evaluation of three new cell designs should continue in detail, costs, estimate of chlorate recovery plant should be made. Do you recall the action taken by Olin when this report and its recommenda-
[fol. 2046] tions were filed?

A. I do not recall any specific action taken because of this report but it seems to me that somewhat later, and I can't name the date, we read about these platinum-coated anodes and we felt we ought to take a quick look at those before any work was done, in trying to come up with a firm recommendation as to which particular know-how we should reach for.

Q. At least, in terms of the premises of these alternative recommendations, namely if immediate construction of a plant is required or if time for development is permitted, what was the prevailing feeling in the Olin organization as you knew it about quick construction as against Olin's own development?

A. We envisioned a demand for sodium chlorate and we heard that Oldbury and Hooker were going to merge; the feeling was that if we were going to do something on sodium chlorate, this was a good time to do it.

Q. And, when you say this was a good time to do it, do you mean to proceed immediately to construct a plant or to proceed to develop through Olin's own research depart-
[fol. 2047] ment a cell of its own?

A. Having a background in electrochemistry for the production of caustic and chlorine, I naturally would lean toward doing something on our own.

Q. And, at the time this report was filed in July 1956,

your own feeling in this regard about Olin's development of a chlorate cell prevailed your point of view about attempting to develop this through Olin's internal organization, was the prevailing feeling at this time, is that correct?

A. I am a little confused; may I have that question read back, please?

(Whereupon, the pending question referred to above was read by the reporter.)

A. Generally speaking, we felt we had know-how to develop a good chlorate cell if given time to do so.

Q. At this time, to your knowledge, was Mr. Block interested and in agreement with this decision or was this simply a lower level determination by the research-development department on its own?

[fol. 2048] A. Pretty much a decision by the research department; Mr. Block was not at that time in charge of our division.

Q. Was Mr. Logan then the top man?

A. I am not certain but he could have been; I hesitate, because Mr. — it was Mr. Drummond who was in the picture at that time; I don't recall whether he was still in or on his way out because for a while Mr. Logan was in charge of the division.

Q. Do you recall whether Mr. Drummond or Mr. Logan believed at this time in 1956 that Olin should proceed on its own to develop a sodium chlorate cell?

A. You are referring specifically to the development of a sodium chlorate cell?

Q. I am, sir, but I'm only doing so on the premise which I had understood to be established by your testimony that this was the key to Olin's entry into sodium chlorate production; if that premise is wrong, I would appreciate it if you would correct the record.

A. The premise is correct; I can say that Mr. Logan and Mr. Drummond always encouraged us to do a lot of thinking about sodium chlorate and the development of a good [fol. 2049] practical cell but our research staff was never large enough in order to do something about it at that particular time.

Q. Were additional funds for a larger research staff requested or discussed at this time?

A. Oh, yes; this is something I always requested, yes.

Q. With particular reference to sodium chlorate, can you tell us why a decision was made not to increase the size of the technical staff to speed up sodium chlorate cell development?

A. Yes; principally, because we could never show a good return on the production of soduim chlorate and because we had no practical experience in that line.

Q. When you referred to, no practical experience, can you tell us how a chemical company such as Olin could achieve practical experience other than through the means that you were then exploring?

A. I think it's obvious from the records, you can always buy it.

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[fol. 2050] By Mr. Freed:

Q. But, do you recall whether the chemical process referred to in Report 503 was in fact compared with the process in Report 506 for producing sodium chlorate from chlorine and soda ash? In other words, was the recommendation of this report carried on as part of your overall effort to achieve a sodium chlorate production?

A. I believe it was.

Q. Dr. Wojcik, I would like next to address your attention to a memorandum from A. J. Holmes to W. C. Gardiner, dated March 6, 1957, showing copies to you and Mr. Nicolaisen; this document contains the designation, Olin D-264; are you familiar with that particular document?

A. I am, sir

Q. In the last paragraph, Mr. Holmes states that it would be possible to enter the chlorate field in a relatively short time if the chemical plant were built immediately and existing caustic and chlorine were used in the operation of this plant; and, he continues, "At least a year would be required to obtain the necessary rectifiers. Chlorine and [fol. 2051] caustic channeled to the chlorate plant could possibly be replaced by Huntsville material." Can you recall what action was taken by you or Dr. Gardiner as a

result of this recommendation or this conclusion in Mr. Holmes' memorandum?

A. We did not pursue the matter further in any serious vein for two reasons; in the first case, we were not sure of the chemistry involved, even though we had undoubtedly done a little—some laboratory work and also there was a serious question in our minds concerning the economics.

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[fol. 2052] Q. Can you tell us the relationship between chlorine or caustic facilities on the one hand and a sodium chlorate plant on the other in terms of any savings or advantages to a company in combining the two types of operations?

A. Production of sodium chlorate, like caustic and chlorine is an electrochemical process so that wherever you produce caustic and chlorine, you would have a knowledge of the type of processing involved, people with background in that work, some understanding of the electrical equipment as well as the handling of certain raw material such as sodium chloride.

Q. And, the three facilities which are mentioned in this report did have some of those physical advantages that would be usable and would be cost savers in connection with the sodium chlorate plant?

A. Yes, I would think so.

Q. On page three of this same report, the statement is made that, quote Investment and operating costs have been received from Pechiney of France and have been compared to the above figures, unquote. Do you have personal knowledge of negotiations or correspondence with this French company?

[fol. 2053] A. I sure do; I started them.

Q. Can you give us the background of the discussions or relations that Olin entered into with—Pechiney, is that correct?

A. Pechiney, yes. I was instrumental in asking our Mr. R. S. Fodor of the International Division to try to obtain information on sodium chlorate production from any European concern that was willing to discuss this subject matter with us; Pechiney came into the picture through our European contacts.

Q. Did Olin Mathieson International contact Pechiney for the purpose of trying to negotiate the acquisition of information from the company for use in your sodium chlorate development process?

A. I believe this is so.

Q. Under whose instructions or overall direction were the contacts with foreign sodium chlorate companies made?

A. I am not certain but I believe it was Mr. Block who asked us to get any and all information from foreign countries on the production of sodium chlorate.

Q. Do you know why the search for sodium chlorate [fol. 2054] information was confined at this time to foreign companies?

A. I believe it was principally on the basis that we were not sure whether this would be a profitable item for us to produce and rather than stir up commotion in the United States, the feeling was that we might learn enough about the production of chlorate, especially from the cost angle to make a decision as to whether we wanted to go ahead with it or not.

Q. What kind of commotion might have been stirred up by requesting this same information from the then existing domestic producers?

A. Of the usual kind; if you are told that certain companies are seriously thinking of producing sodium chlorate and if you are already producing it yourself, the chances are that—that you want to up your production and let the industry know as a whole that you are in a position to supply the demand.

Q. In other words, by proceeding solely through foreign sources, Olin would avoid the risk of pushing other domestic companies into increasing their own production?

A. That's possible.

* * * * * * *

[fol. 2055] Q. On page four of Report No. 504, the objective of the report is stated as being, quote To determine realistic production and investment costs for a 40-ton per day sodium chlorate plant to be located at one of Olin Mathieson's Southern electrochemical plants, unquote. Was this decision, if a decision was made to concentrate Olin's sodium chlorate studies on a Southern electrochemical

plant of the company made by you or was it—was this the result of some higher level decision within the company insofar as the potential location of a sodium chlorate plant?

A. It was only natural for the people in research and development, including myself, to consider putting up a sodium chlorate plant in the areas where we already had [fol. 2056] operations going and especially since they were in places where a large quantity of sodium chlorate was being consumed by the paper mills for the generation of chlorine dioxide.

Q. The sole recommendation of Report 504 is given on page eight as being that, quote It is recommended that consideration be given to chemical production of sodium chlorate before making a decision on the method of manufacture, unquote. Could you give us a brief summary again in layman's—in language for the layman on the difference between chemical and alternative means of production?

A. The word chemical production is used rather loosely there; I say that for the simple reason, in order to produce chlorate chemically at some stage of the game, an electrochemical operation was involved; you took sodium chloride, electrolyzed it, converted it to caustic and chlorine; then, you take caustic and chlorine and react them together to form an intermediate product, sodium hyperchlorite which, on heating, is chemically converted to some salt, sodium chloride and sodium chlorate; when you go over to the direct generation of sodium chlorate from salt, you elec- [fol. 2057] trolyze salt in a cell to the point where it does not produce free caustic and chlorine but sodium chlorate.

Q. After the research and development effort on chemical production as you have described, what were your conclusions with respect to the feasibility and desirability of the exact method of producing sodium chlorate?

A. In the first place, we were not too sure that the chemical reactions would proceed in the plant as well as they had in the laboratory and, secondly, there is a question of economics.

Q. To what extent did you pursue the chemical method?

A. We briefly tested it out in the laboratory and prepared economic reports.

Q. And, your eventual conclusion was to drop that par-

ticular method of producing sodium chlorate, is that correct?

A. That is correct.

Q. It is not, in your view, a commercially feasible method of producing sodium chlorate, is that correct?

A. That is correct.

* * * * * * *

[fol. 2058] By Mr. Freed:

Q. Dr. Wojcik, are you familiar with Electrochemical Survey Report H-35.506 entitled, "Production of Sodium Chlorate from Soda Ash at Saltville, Virginia" dated March 6, 1957?

A. I am.

Q. Directing your attention first to the cover of that report, I notice that on many of these reports in the list of names in the left-hand column, the names towards the bottom of the list have a capital "S" in front of them. Could you explain to us what that designation signifies?

A. I sure can and it means that these people have received the summary page or received an abstract of the report, usually the summary page.

[fol. 2059] Q. So that if a person's name appears twice on the name list, it means they have received both the full report and the summary but if their name only appears with an "S" next to it, that person only received the summary?

A. That is correct. I should like to add, he does have the privilege to see the whole report if he desires to so do.

Q. Also a general question in respect to these reports, what is the significance of the serial numbers, in this case H-35.506? We notice that there are other reports with different designation. In what category or class do reports with this kind of number fall?

A. Principally in the category of engineering-development reports. There would be others from research, for example, with a different series number.

Q. But a report with an H-35.500 number would refer to engineering and——

A. Development.

Q. —development reports. Now, directing your atten-

tion to Page 2 of Report No. 506, you will note that part of the summary states that it is concluded that the proposed [fol. 2060] process presents a method for the corporation's rapid entry into sodium chlorate production and on Page 4 of the same report, the conclusion spells out and I quote:

"The return on the investment has been calculated as 35 percent and the pay-out time as 2.4 years."

Can you enlighten us as to what happened to this report? Were its conclusions accepted or were they found deficient in some respect?

A. They were found deficient principally in the respect that we were not sure completely of our technology.

. . . . . .

[fol. 2061] Q. At the time of this report, which is March [fol. 2062] 1957, was the need for proceeding pretty fast that you have already referred to a need that was recognized on a divisional level in the company?

A. I don't feel qualified to answer that question. I had not discussed the subject matter with other people as, for example, the sales and management. I was cognizant of the fact that we had to proceed rather rapidly on chlorate production if we were going to go into it on our own.

Q. But was your cognizance of that fact based on instructions from or conversations with other members of management?

A. No, it was not.

Q. It was then a recognition on your own part of the realities of the sodium chlorate business?

A. I think this is correct.

Q. At the time in March 1957, were you the Director of the Research and Development Department?

A. For Industrial Chemicals, yes.

Q. And can you tell us the——

A. Excuse me, correction. I was Manager then of Research and Development.

[fol. 2063] Q. Can you tell us the other posts and the dates of those posts that you held in the Research and Development Department?

A. About '54 to '59, I was Manager of Research and Development. From about 1959 to 1960, I was Director

of Research and Development, Industrial Chemicals, and then from 1960 for a while, I was Director of Inorganic Research and had administrative duties over Quality Control and more recently, as I stated before, I became Scientific Adviser.

Q. Dr. Wojcik, during the balance of 1957, following the March report on the soda ash process, were you and your department continually engaged in a sodium chlorate research and development in an effort to achieve a commercially feasible process?

A. I believe this is correct.

Q. Do you recall, Dr. Wojcik, being present at Division Management meetings of the Chemicals Division in the period 1955 to 1960?

A. From about 1956 to perhaps '58, '59, yes, I would have been present.

Q. And was your presence at that, at those meetings [fol. 2064] part of your responsibility as head of the Research and Development Department?

A. Yes, I was invited to those meetings to participate.

. . . . . .

[fol. 2065] Q. Do you recall anything being said or hearing anything in this general period, the end of '57, the beginning of '58, about the reasons why Olin and Pennsalt were entering into the sales arrangement?

A. Yes, I vaguely recall some statement to the effect that if we are going to give serious consideration to the production of sodium chlorate, we ought to do something about firming up some customers which we could later supply with our own production.

Q. Do you recall when you became aware of that philosophy or reason behind the arrangement?

A. Not for certain but I would guess it would be '57 or '58 somewhere.

[fol. 2066] Q. Do you recall who told you that?

A. No, sir, I do not. This could have been mentioned by somebody at a meeting and I just don't recall whom it might be.

Q. It nevertheless represents your understanding based on your involvement with the management of the Chemicals Division? This was the understanding that you had of

the philosophy and the background of the sales arrangement with Pennsalt, is that correct?

A. Well, you injected something there that I am not too certain of. The sales arrangement with Pennsalt, I had no knowledge at the time but I do know that we had a feeling then that if we were going to seriously consider production of sodium chlorate, we might as well try to arrange for some sales so that when we got into the production, it would be an easy matter for us to supply customers with the desired product.

Q. Do you recall any discussion in this period about the possibility of Pennsalt and Olin jointly entering into the production of sodium chlorate?

A. This was back in 1957?

Q. In the end of '57, the beginning of '58.

[fol. 2067] A. I am not sure that I do know.

Q. Can you, on the basis of your review of the materials in your file, recall approximately when you first heard that Olin and Pennsalt were considering a joint production effort in sodium chlorate?

A. I don't recall I ever heard that there was serious consideration being given to that until Mr. Block told me, as I had stated, sometime late in '59 that a decision had been made to form Penn-Olin.

Q. Is it correct then that until the latter part of '59, when you had your conversation with Mr. Block, you were proceeding in your sodium chlorate exploration effort on the assumption that Olin would enter into the production of sodium chlorate on its own?

A. Oh, that I believe is so, yes.

Mr. Barnum: If at all. Is that the way that question should be interpreted? Certainly not on the assumption that Olin would enter into the production of sodium chlorate?

The Witness: A good point but I was always of the opinion if we could prove our case to management that this [fol. 2068] was a profitable thing for us to do, we would go ahead on our own.

By Mr. Freed:

Q. Do you recall, Dr. Wojcik, early in February of 1958 having a conversation with Mr. Logan with regard to assembling information on the economics of producing both chlorate and perchlorate?

A. I don't recall the conversation. I recall having received a memorandum from him asking me to give some consideration to the matter.

Q. And are you referring, sir, to the memorandum dated February 19, 1958, from Mr. Logan to yourself?

A. That is correct.

Q. Can you, based on your examination of this document from your own files, recall anything about either the conversation or the reasons given by Mr. Logan for the particular instruction at this time to assemble information?

A. Yes. I am not referring to any discussions with Mr. Logan but as I mentioned before, I was familiar with the possibility of a huge demand for perchlorate to be used in guided missiles and so on and couldn't help but feel that [fol. 2069] more than ever, we should get into the sodium chlorate production on our own. As a matter of fact, we had done a little bit of work at one time at the Government's expense for the production of ammonium perchlorate by means other than the use of an electrochemical reaction.

Q. When was that, sir, that you undertook that for the Government?

A. On, that—I am not sure but I am guessing now—'53, '54.

Q. That was pursuant to the research and development contract between Olin and the Government?

A. That is correct.

Q. Did the work which you did at that time in 1953 or '54 involve the production of ammonium perchlorate from sodium chlorate or was there another chemical that was used as the ingredient?

A. It was sodium chlorate that was going to be used as the raw material and we were then asked by the Government to investigate processes other than electrochemicals that would use platinum for the conversion of sodium chlorate to perchlorate.

[fol. 2070] Q. And what was the result of your study?

A. The result of our study was that this could be done

but we would not do it unless there was an emergency in the country. In other words, it was more costly to make perchlorate by chemical means than by electrochemical. This was the specific project assigned to us to be prepared if an emergency arose.

Q. So that the only tangible result of your study or a tangible result of your study was that Olin developed a means of producing ammonium perchlorate by electrochemical means in an emergency, is that correct?

A. Not by electrochemical means. We would start with sodium chlorate and by chemical means convert it. Again I qualify that by saying this. In some phase of this process, electrochemical means were used for the production of sodium chlorate.

Q. To your knowledge, has Olin, subsequent to the completion of its work on the Government contract, done any further work in the field of ammonium perchlorate production or research?

A. To my knowledge, no.

Q. This memorandum refers to a discussion between [fol. 2071] Mr. Logan and Dr. Hanford, who I gather had responsibility in the field of perchlorate. To your knowledge, has Dr. Hanford or the Solid Fuels Group within Olin maintained any interest or maintained any work in the perchlorate field?

A. I would say that Olin as a whole would always be interested in what is going on in the perchlorate because it indirectly affects our chlorine cost of production, plus our desire to go into the chlorate production but as a matter of fact, I would not know what some of the other divisions are doing, especially if it were a Government project that they were working on and it was of a confidential nature.

Q. But to your knowledge, as of today, Olin has no activity in the perchlorate field?

A. That, I believe, is correct.

Q. Dr. Wojcik, can you tell us who Mr. Schiessl and Mr. K. Lewis were in terms of their positions in the Company in February of 1958?

A. Mr. Schiessl was my assistant and Mr. Kennett Lewis was, I believe, the Chief Engineer for the Division at that time.

Q. Are you familiar with the memorandum which Mr.

[fol. 2072] Schiessl directed to Mr. Lewis on February 27, 1958, with a copy to you?

A. I am.

Q. That document has been previously marked Olin D246. In the third paragraph, Mr. Schiessl makes the statement, "It is felt that the cost estimates for electrolytic sodium chlorate are fairly accurate. Further, we feel there is sufficient know-how within the division to proceed directly with commercial production of sodium chlorate. Perhaps this point should be corroborated by Joe Wood and W. C. Gardiner."

Did these views as expressed by Mr. Schiessl represent your own feeling as of the time of this memorandum?

A. Well, let's take this apart. The first sentence refers to cost estimates and I know precisely what I asked Mr. Schiessl to do there and that was to check the arithmetic and make sure he didn't find any glaring errors.

Q. The arithmetic that had been set forth on Electrochemical Survey Report H-35.504?

A. That is correct. Now, when it comes to the question of sufficient know-how, I don't hardly subscribe to what is being said here. It was always my feeling, sure, if life [fol. 2073] depended upon it, we could make it but the economics bothered me and the unknown factors that I had mentioned previously, which tie in with the economics.

The fact that Schiessl goes on and says this point should be corroborated by Joe Wood and Gardiner indicates that even in his own mind, he was not certain of the statement made, of the second sentence.

Q. Do you recall discussing this particular point with Mr. Schiessl after receiving the memorandum?

A. I do.

Q. Do you know whether his statement about sufficient know-how was accurate in so far as ability to produce sodium chlorate without regard to the economics is concerned? In other words, if you would separate technological ability from commercial feasibility or profitability, was it your feeling at this time that Mr. Schiessl's statemment was correct?

A. No, it was not.

Q. And what were the problems—strike that.

Do you know what led Mr. Schiessl to write this particular sentence?

A. I think I do.

[fol. 2074] Q. Would you tell us?

A. He had made a review of the literature and compared what we knew about the process at that time with what was in the literature and it was his personal feeling that we did have enough know-how. I questioned him about certain phases and there is no question in my mind that his replies were a bit fuzzy.

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Q. On March 27, 1958, Mr. Schiessl wrote a memorandum to Mr. Logan on the subject of sodium chlorate and ammonium perchlorate. The document is Olin D247. Are you familiar with that particular report, sir?

A. I am.

Q. The next to the last paragraph on the first page refers to some development work at Niagara Falls. Is that in reference to all of the work which we have been discussing in your deposition today or does this refer to some specific project that we have not previously touched upon?

A. I believe that in this case, Mr. Schiessl is referring to the work that we had done for the Government on the [fol. 2075] production of ammonium perchlorate.

Q. The statement is contained on page 1 under the heading, "Sodium chlorate chemical process" and on page 2 of the document there is a new section entitled, "Ammonium perchlorate." I wonder whether——

A. Correction. If I may correct what I said before. You are correct, Mr. Freed, that Mr. Schiessl is referring to chlorate by the chlorination of caustic when he says some development work on this process has already been done at Niagara and further study is needed before commercialization.

Q. Do you recall, sir, whether this particular report by Mr. Schiessl stated views and conclusions which were endorsed by you in the memorandum which we discussed previously?

A. In principle, yes. In detail, not necessarily so.

Q. Are there any glaring or important errors in this report that you could point out to us?

A. I couldn't answer that question without studying this

in detail. Offhand, I have reviewed it once. I didn't see anything glaring or else I would have taken it up with Mr. Schiessl before it was released.

[fol. 2076] Q. But your recollection is that this memorandum was sent as is to Mr. Logan for action by him?

A. I have had a chance to look at it before it was released and I asked Mr. Schiessl to summarize our views on this for Mr. Logan's benefit.

Q. Dr. Wojcik, are you familiar with the memorandum dated April 7, 1958, from Dr. Gardiner to Mr. Wood, copy of which was sent to you, entitled, "Chlorates"?

A. I am.

Q. In the second sentence of the second paragraph, Dr. Gardiner states, "If we get into electrochemical chlorate again, we should investigate it." The "it" is referring to the use of vanadate. Can you tell us on the basis of the statement I have quoted whether Dr. Gardiner meant to imply that at this time in April, 1958, Olin's interest in electrochemical chlorate had subsided or was he simply referring to the particular process which had been frowned on?

A. He was referring to a particular process, in this case being the usual method of producing chlorate. We were still at the same time working on trying to develop the platinized titanium anodes for use in chlorate production.

[fol. 2077] Q. Then Dr. Gardiner's idea—correct me if the statement is wrong—was that if Olin were to return to exploring conventional means of producing sodium chlorate, the use of vanadate would become significant to the movement; however, Olin was engaged in trying to discover a lower cost method of producing sodium chlorate?

A. That is correct.

Mr. Freed: Off the record a minute.

(Discussion off the record.)

Mr. Freed: Back on the record.

By Mr. Freed:

Q. Dr. Wojcik, to clarify the record, could you explain to us briefly what vanadate is and what the significance of Dr. Gardiner's remarks to Mr. Wood about its use in electrochemical chlorate production signifies?

A. Vanadate is a salt of vanadium. In this case, it was

the sodium salt and its use in conjunction with chromium would be to minimize corrosion during the production of chlorate.

Q. At any time subsequent to this memorandum, did you or your department in fact explore the use of vanadate [fol. 2078] further as an anti-corrosive or with reference to the corrosion part?

A. I do not think so. I don't recall hearing about it.

Q. Sir, I would next like to direct your attention to the very voluminous report which is numbered H-35.701 and entitled, "Engineering Survey Report" on the subject of manufacture of sodium chlorate. The date of the report is April 29, 1958 and it was typed on May, 1958.

Mr. Barnum: What is the number in the book?

Mr. Freed: There is a pencil notation D250. This is Engineering Survey Report H-35.701.

Mr. Barnum: Would you repeat the question?

(Question read.)

By Mr. Freed:

Q. Are you familiar with that report, sir?

A. I am.

Q. Turning first to the designation of this document as an Engineering Survey Report, I would like to observe for the record that all of the reports discussed up to this point are Electrochemical Survey Reports.

I wonder if you could enlighten us to the significance [fol. 2079] of this as an engineering report?

A. In general, we have always considered the group that worked on electrochemistry as a part of the development segment, which was principally headed up by engineers, and it is quite possible at one time it was called an Engineering Survey Report and at some other time a Survey Report released by the Electrochemical group.

Q. Is the fact that this is an Engineering Survey Report indicative of any greater interest or more widespread interest within the Chemical Division on the subject matter of the report?

A. Essentially, that is correct.

Q. Do you recall, sir, the circumstances under which this particular report was prepared? Do you recall who in-

structed, gave the instructions for its preparation and what the circumstances surrounding it were?

A. I sure do.

Q. Would you tell us?

"Mr. Block asked for a report which would bring together Research and Development's latest thoughts on processes for the production of sodium chlorate. Dr. R. C. Harshman was given the assignment to prepare the report."

[fol. 2080] Q. And when did that meeting take place, do you recall?

A. Offhand not, but I would guess a few months before the report was written.

Q. What was Mr. Harshman's position at the time?

A. He was a Supervisor of the Engineering Group in development.

Q. Was Mr. Harshman one of your subordinates at the time?

A. Indirectly, yes.

Q. What was the name of the committee or group at the meeting at which Mr. Block gave these instructions?

A. There was no name. There was no committee but periodically—at this particular time, it was about once each month—Mr. Block would come to Niagara Falls and sit down with Research and Development and review all of the projects that were going on at that time.

Q. Do you recall Mr. Block's reasons for requesting this particular report at the meeting at the early part of 1958?

A. I sure do.

[fol. 2081] Q. Would you tell us what they were, sir?

A. He had been told about some of our previous evaluations and survey reports on sodium chlorate and especially statements made about the profits and he was not satisfied we had enough information on which to draw even the conclusion that we did at that time. Our thoughts expressed to him then were that we needed to do a great deal more of work in order to be sure and even if the limited profit we were showing then was real, so he wanted to have somebody make an independent study. He asked Dr. Harshman to do that. Normally, I would have asked Dr. Gardiner and review to present another report but Mr. Block specifically requested Dr. Harshman to do it.

Q. Did this request and the interest which it reflected on Mr. Block's part represent the first considerable expression of interest by him in the sodium chlorate project? Was this the first time that he had indicated such a detailed interest in the work which you had been doing?

A. No, this was not the first time but as I recall the circumstances under which this was—this report was requested of Dr. Harshman, he felt that we weren't moving [fol. 2082] fast enough, number 1, and number 2, we weren't sure of our information sufficiently on which he could evaluate whether we should continue or try something else.

Q. Did Mr. Block at this meeting make any reference to the target date by which he wished to have a decision by Olin concerning entry into the chlorate business?

A. Mr. Freed, I don't recall of any target date set by Mr. Block. It was his nature to try to get things done as fast as possible.

Q. Did Mr. Block say anything which would have indicated at that time Olin's interest in entering sodium chlorate production with anyone else?

A. No, sir. I do not recall his ever bringing that up.

Q. This particular study then was undertaken for the purpose of summarizing Olin's own studies and capabilities to enter into sodium chlorate production by itself, is that correct, sir?

A. Yes. Off the record a minute.

(Discussion off the record.)

By Mr. Freed:

[fol. 2083] Q. Directing your attention, sir, to the conclusions and recommendations stated at page 13 of report No. 701, can you tell us the extent to which those conclusions and recommendations were accepted and acted upon by Mr. Block?

A. Yes, I believe I can. He felt that for the first time, we had presented a picture which warranted a real drive on Mathieson's part to go ahead with the chlorate production on its own.

Q. Was Mr. Block's conclusion in this respect communicated to you in person, at a meeting, or by correspondence or under what circumstances?

A. I remember his making the statement that chlorate

production based on what we have here now looks better than it ever did before as far as profits are concerned.

. . . . . .

[fol. 2084] Q. Dr. Wojcik, can you tell us what instructions, if any, Mr. Block issued after receiving the report with respect to further activity on the part of your division in the chlorate manufacture area?

A. Mr. Block was a great one for trying to firm up any and all outside knowledge that we could get without making commitments to anyone and to that extent, he had asked [fol. 2085] me, as I recall, to try to find out what was available in other areas and I, of course, tried to get the information through our International Division. I believe this is correct.

Q. In other words, it would have been at this time after receiving this report that Mr. Block asked you to investigate the availability of foreign technology or construction or production know-how assistance, is that correct?

A. You stated foreign. I don't recall that he ever limited me to foreign information. It was just general information, whatever was available, wherever it came from.

. . . . . .

[fol. 2086] By Mr. Freed:

Q. Dr. Wojcik, do you have in your file the memorandum to you from Mr. R. C Harshman dated August 19, 1958, marked Olin D256? The document is five pages long and it is entitled, "Cost Estimates on Electrochemical Production of Sodium Chlorate"?

A. I do have and I do recall seeing this document.

Q. Do you recall, sir, the circumstances under which this particular memorandum was written to you?

A. Yes. This ties in with the engineering survey report, as I recall, that Block wanted firmed up to something that he could use for discussion purposes as quickly as possible.

Q. At the bottom of page 2 of the memorandum, Mr. Harshman states that sodium chlorate represents a logical expansion of the product line of the Industrial Chemicals Division if the production of sodium chlorate could be carried out at a location where cheap power was avail-

able, where shipping charges on the product to the major consumers would be small and where other Olin Mathie-
[fol. 2087] son operations existed or could be set up, it should represent an attractive venture.

These conclusions of Mr. Harshman tend to parallel those in report 701, which we have previously mentioned. Do you recall whether any particular action was taken as a result of this memorandum by Mr. Harshman?

A. I don't recall any particular action taken because of this report. I have the feeling that it helped strengthen Block's thoughts about our going ahead.

Q. Strengthen, did you say?

A. Yes, Block's thoughts of our going ahead with the production of sodium chlorate.

Q. In the fall of 1958, sir, negotiations with Vickers-Krebs commenced and there is a memorandum from Dr. Fodor to Dr. Gardiner, copy of which was sent to you, dated October 3, 1958. Do you recall, sir, the reason why —well, can you explain to us first what the Turnkey proposal was which Vickers made?

A. No, sir. I don't recall what the Turnkey proposal was.

Q. Do you recall at this time, did you have primary [fol. 2088] responsibility for the negotiations with Vickers-or was that delegated elsewhere?

A. I did not at this time have primary responsibility for negotiating with Vickers-Krebs.

[fol. 2089] Q. Dr. Wojcik, on November 11, 1958 a meeting was held with representatives of Vickers-Krebs to discuss the plant which they were proposing to build for Olin. A summary of that meeting is contained in a memorandum from Mr. Holmes to Dr. Gardiner dated November 24, 1958, marked Olin C 431 and which indicates that it was received by you on November 26, 1958. The memorandum summarizes the case of proposal which Vickers-Krebs was in the process of making.

Can you tell us what the reaction of your department and of the Chemical Division management was at this time toward the negotiations with Vickers-Krebs?

A. I can speak for the department but not for management. We, as you know, were asked to get outside information and this is indicative of what we did, talked to

whomever we thought could help us in firming up our thoughts on best ways to make sodium chlorate, costs, plant investments, and so forth.

Q. Your negotiations with Vickers-Krebs were being conducted as part of the program for assemblying information that Mr. Block had laid down earlier in '58, is that correct, sir?

[fol. 2090] A. That's correct.

Q. What was Olin's objective insofar as Vickers was concerned? What was the target?

. . . . . .

[fol. 2091] A. Olin's objective there was to determine how sure Vickers-Krebs was of its knowledge and—in constructing sodium chlorate plants and to help firm up our evaluation studies and also to give serious consideration to engaging a firm which would construct a sodium chlorate facility for us. We had no target date at the time on discussions when they were carried out with Vickers-Krebs.

[fol. 2092] By Mr. Freed:

Q. Did there come a time after the period we have now been addressing ourselves to, namely, late 1958, when a target date was established?

A. I don't recall ever being told that there was a target date. I do know that we were being pressed for information on our ability to make sodium chlorate, know-how, things we were doing in the laboratory on the development of the platinized titanium anode.

Q. Dr. Wojcik, on December 11, 1958 Dr. Gardiner wrote a memorandum to you entitled sodium chlorate plant location. This document is designated Olin D 262. It contains freight equalization information with regard to various plant locations of Olin Mathieson Chemical Corporation. Under whose instructions, sir, was this freight equalization and plant location study undertaken?

A. I don't recall for sure but I assume it was Mr. Block that asked for this information.

Q. In the top center of this document appears a handwritten notation which I believe states. "To discuss with E. Block." If my reading of that notation is correct, sir,

[fol. 2093] can you tell us whether in fact you discussed this information with Mr. Block and what the results of that discussion were?

A. I did discuss this document with Mr. Block. He had instructed me to write to our Mr. Collison for power rates at Burnside and he had talked to me about barge or bulk shipment of sodium chlorate. I had told him at the time that there was no clearance for the bulk shipment of sodium chlorate in barges.

Q. That there was no clearance?

A. Yes.

Q. Can you explain what that term means here?

A. In order to ship chemicals from one state to another state and other places you need clearance from proper authorities who would be satisfied that it is safe to so do and we did not at that time have the clearance.

Q. Dr. Wojcik, I direct your attention now to "Electrochemical Survey Report H-35.507," entitled comparison of Vickers-Krebs and Pechiney sodium chlorate plants. The report is dated December 11, 1958 and was typed on January 8, 1959.

A. Did you say nine or one?

[fol. 2094] Q. I said January 8, 1959.

A. I just wanted to make sure.

Q. At the time this comparision was made of the proposal submitted to Olin by these foreign countries, was Olin actively engaged in negotiation with Pechiney?

A. We never were actively engaged in negotiating with either Pechiney or Vickers-Krebs. We were feeling our way to that point.

Q. The term actively negotiating, sir, is based on the fact that there have already been delivered to the plaintiff a number of items of correspondence and memoranda dealing with the Vickers-Krebs case but Pechiney appears only in references from time to time and there is no direct correspondence. My question to you is designed to determine the nature of the discussions which you were having with Pechiney as contrasted with the nature of the discussions then going on with Vickers-Krebs.

A. I, personally, wasn't involved in any discussion with Pechiney personnel on sodium chlorate production, then again I repeat all that we were after there is information of

a general nature which anyone interested in the subject [fol. 2095] matter could get for further study and evaluation by research and development.

To the best of my knowledge we were also trying to do the same thing with Vickers-Krebs, trying to get general information. Quite often a company like Pechiney or a company like Vivkers-Krebs will publish bulletins that spell out in some detail the process, itself, power, salt, capital investment, so that with that type of information you can quite readily get some idea as to whether you are in the same ball park on your own estimates or not.

Q. The Vickers-Krebs material which was furnished to the plaintiff from your own file indicates that Vickers was interested in furnishing and making proposals to Olin for furnishing services of various types in connection with your sodium chlorate effort. Was Pechiney also active in soliciting or taking affirmative steps to enter into an arrangement with Olin in the same manner as Vickers?

A. Not to my knowledge.

Q. Then would you say, sir, that the investigations with Vickers were the most advanced and the most mature of all the efforts which had been undertaken by your company in [fol. 2096] the area of securing foreign technology and know-how?

A. It would appear so. However, I was never present at Vickers-Krebs when any serious consideration was given to the sodium chlorate plant per se. Is that clear?

Q. When you refer to sodium chlorate plant per se what are you contrasting that with? Are you contrasting that with discussions dealing solely with development of a particular chlorate cell?

A. That's correct. I was present at meetings when we discussed the developments of a particular sodium chlorate cell.

Q. Dr. Wojcik, I would like to turn now to Electrochemical Survey Report H-35.508 entitled Econmic Location of Sodium Chlorate Plant, dated January 9, 1959, typed January 20, 1959, and designated Olin D 234. Are you familar, sir, with the contents of this report?

A. Yes, I am.

Q. The summary of this report on Page 2 indicates that when freight rates and production costs have been calculated

at various Olin locations, Saltville, Virginia, "seems to be the best location should the plant be built at an existing [fol. 2097] QMCC Chemical Division Plant." The conclusions and recommendations, however, indicate that the economics of a grass roots plant should be reviewed. Can you tell us whether this report resulted in a grass roots study by Olin?

A. Offhand, I don't recall but certainly in the gathering of our information from outside sources it would be only natural for us to ask about the costs of putting up a grass roots plant.

. . . . . .

Q. Returning to the recommendations that I referred to before in Report No. 508, Dr. Wojcik, the recommendation dealing with a grass roots plant concern a grass roots plant in the TVA area, where lower freight equalization and lower [fol. 2098] power costs might be available, and I ask you whether in your recollection the Chemicals Division at any time undertook a survey of grass roots locations for a sodium chlorate plant?

A. We certainly did look for cheap power in the TVA area and to this end it is only logical to conclude that we had considered a grass roots plant somewhere.

Q. Do you recall any of the grass roots locations that were seriously investigated by Olin?

A. Not offhand.

Q. Surely after the issuance of Report No. 508 a conference was held in the office of Canadian Vickers Limited in Montreal on February 10.

Mr. Barnum: Are you stating that as a fact of your own knowledge, Mr. Freed?

Mr. Freed: I haven't finished the question.

By Mr. Freed:

Q. On February 10, 1959, which conferences reflected any memorandum by Dr. Gardiner dated February 11, 1959, copies of which were furnished to Dr. Wojcik and others. This document is designated Olin C422, and are you familiar with the memorandum of that conference, sir?

[fol. 2099] A. Yes, I am.

Q. The last paragraph on the first page states, "Our management is anxious to get into the chlorate business and are interested in the Vickers-Krebs proposal for a chlorate plant but feel that they cannot afford to overlook the possibility indicated for operation with platinized titanium anodes.

"We told them that Mr. Block had instructed us to find out if they were willing to give us their know-how in constructing and developing a chlorate cell in exchange for rights to exploit the cell which might be developed."

I would like to ask first whether that paragraph accurately reflects the position of Olin management, if you would recall it at the time, and if it was known to you?

A. I might say for the record that Dr. Gardiner could have considered me as part of management and if I asked him to do something if would be very easy to say our management, or management asked me to do this. It does not necessarily reflect all the people that might be considered as a part of the management group.

Q. At least insofar as management included Mr. Block [fol. 2100] to your knowledge would this statement inaccurately reflect the attitude and position of Mr. Block as you then understood it?

A. As I understood it did not inaccurately reflect his thoughts.

Q. To state it affirmatively then, this paragraph would represent what you thought Mr. Block's feelings about this sodium chlorate project were?

A. Essentially, yes.

. . . . . .

[fol. 2101] By Mr. Freed:

Q. Dr. Wojcik, February 16, 1959 the minutes of the Division Management meeting reflect that you were among those present. I would like this document to be marked Plaintiff's Wojcik Exhibit 4.

(Plaintiff's Wojcik Exhibit No. 4 was marked for identification.)

By Mr. Freed:

Q. I would like you to examine the minutes of the February 16 meeting and ask you, sir, if you can recall any of the details of the Pennsalt proposal referred to or the Pennsalt interest referred to in the minutes referred to on the joint venture on chlorate.

A. No, sir, I do not recall any of the details.

Q. Do you recall the subject matter of a possible joint venture with Pennsalt being discussed on that date at that meeting?

A. I don't know whether it was on this date at this meeting but I recall having heard a joint venture with Pennsalt mentioned at division or management meetings about this [fol. 2102] time of the year, '59 that is.

Q. Can you recall any of the details that were then being discussed of the nature of a possible joint venture with Pennsalt?

A. No. As a rule details were not discussed at management meetings. The subject matter was mentioned or if there was a specific item that needed special attention it was called to some individual's attention for action.

Q. In the discussions which you did hear or the information which did come to your attention in or out of division management meetings around February 19, 1959 do you recall any of the details or any of the facts related to you concerning the Pennsalt joint venture possibility?

A. I don't recall any details of facts.

Q. Can you recall any mention being made of the proposed location or a joint facility in February 1959?

A. No, I do not.

Q. Do you recall any discussion about the effect or the possible effect of a joint venture with Pennsalt on the research and development activities which you were then conducting in the sodium chlorate field?

[fol. 2103] A. No, I do not recall any statements made about the effect of the joint venture with Pennsalt on their research and development work.

Q. Can you recall being concerned at all at this time about the possible effect of a joint venture with Pennsalt on the activities which you were then conducting in the sodium chlorate area?

A. I wouldn't say that I was concerned. I was anxious and hopeful that research would be instrumental in convincing management that we had sufficient information to proceed on our own.

Q. Do you recall making your views in this respect known in relation to what you had heard about the Pennsalt negotiations?

A. No, I do not recall with possible exceptions to associates that were on this project like Nicolaisen or Gardiner.

Q. Confining my question to possible discussions which you may have had with Nicolaisen and Gardiner who were your associates at the time, do you recall expressing any concern to them or engaging in any discussions with them [fol. 2104] about the effect or possible effect of these Pennsalt negotiations on your own activities?

A. No, I don't recall having discussed anything in particular with them but I do feel it would be obvious to them as well as to myself if we were going to be instrumental in going on and on, it was necessary to produce as much concrete evidence based on our latitude of work as quickly as possible.

Q. Did you take any affirmative steps that you can recall in conversation or instructions to subordinates following the first information you received about the Pennsalt negotiations with respect to voicing objections or pushing ahead harder on your own research and development work?

A. Except for putting a little more pressure on the fellows to get the answers out more quickly, if nothing else.

Q. But at least to that extent you did try to speed up your own research and development work and studies?

A. Yes.

Q. Do you recall when and to whom you indicated desirability of a speed up?

A. I thought I indicated that in the answer to the pre- [fol. 2105] vious question when I mentioned Nicolaisen's name and Gardiner's name.

Q. Can you tell us during this period we have been discussing, beginning with the first Electrochemical Survey Report in 1955 and coming up to February 1959 approximately what portion of the time, of the time of your department and your department's resources was being devoted to the sodium chlorate project?

A. Not offhand but I would say it was a fair amount and by that I mean perhaps 25 percent.

Q. Would that be 25 percent of the people in your division or 25 percent of the total resources in people and money and everything else that goes into making up your department?

A. Principally people.

Q. Then 25 percent of the people may have been spending full time on this. The others would be engaged in other chemicals division projects?

A. That's correct. I should like to state that this 25 percent was essentially the engineering and the electrochemical groups and need not necessarily encompass the entire research and development staff that were under my super-
[fol. 2106] vision at the time.

Q. Approximately how many people were represented by the group that was devoting its efforts in large measure to sodium chlorate in the period from 1955 to 1956?

A. I can't be sure because we would be switching those people around and have to go back to the records and you may find there were as many as, oh, perhaps a dozen people involved from time to time, not necessarily steady.

Q. Turning your attention now, sir, to Electrochemical Survey Report H-35.509 and entitled Geographic Survey of Electricity Cost for Sodium Chlorate Plant. This report is dated February 25, 1959. It was typed on April 14, 1959 and it is designated Olin D 233. Are you familiar, Dr. Wojcik, with the contents of that report?

A. I am.

Q. Do you recall the circumstances which led to the preparation of this report following your report No. 508 which had also dealt with economic location but which also had dealt with the location of a sodium chlorate plant?

A. Well, if you will look at the titles of the two reports you will see that in one case we are talking about an eco-
[fol. 2107] nomic location of sodium chlorite plant and on the other——

Q. Chlorate, ate?

A. Sodium chlorate, I am sorry, and the other case a geographical survey of electricity cost for sodium chlorate plant. We realized that at that time, that the cost of electricity was going to be a significant factor in the production

costs of sodium chlorate. We wanted to make certain that we were going to locate this plant in the best area as far as costs of production or current, taking all phases of production into account.

Q. And so far as the choice of location that you would survey I believe you will find that a comparison of reports 508 and 509 shows that Chattanooga is recommended on Page 5 of Report No. 509 as a location at which freight rates should be computed and compared with those of other locations but that Chattanooga had not previously appeared in the electrochemical survey reports. Do you know whether this report 509 is in fact the first which you undertook any careful study or consideration of Chattanooga?

A. Offhand I don't recall.

[fol. 2108] Q. Can you recall under what circumstances or by whom Chattanooga was first suggested as a possible location for a sodium chlorate plant?

A. I believe I can. I am not certain. It seems to me that one of our market development people had gone out into that area to test out the wire drawing compound.

Q. To test out what, sir?

A. A wire drawing compound, and he had talked to some people in that location about the desirability of locating chemical plants there and made it known to us that this may not be a bad place for the location of a sodium chlorate plant.

Q. Do you recall who that representative of Olin was?

A. Offhand I don't recall his name.

Q. He was a member of which branch or division or group?

A. Market development.

Q. Was it Mr. Northgraves?

A. No, it was not.

Q. As a result of the recommendation, recommendation No. 2, in Report No. 509, did you undertake a study of [fol. 2109] freight rates at Chattanooga?

A. I am not certain but I believe this was done.

Q. Was Chattanooga at that time a grass roots location?

A. No.

Q. What facilities of Olin were located at Chattanooga at this time?

A. We had a wire drawing operation going on there which was a part of Olin before they merged with Mathieson.

Q. I would like now to turn to Electro-Chemical Survey Report H-35.510 which is blessedly the last one of that particular series of electrochemical survey reports. It is dated April 17, 1959. It was typed on May 7, 1959. It is designated Olin D 232 and it is entitled, "Economic Location of Sodium Chlorate Plant Using Platinized Titanium Electrode Cells.

Are you familiar with this report, Dr. Wojcik?

A I am.

Q This report shows on Page 3 that Chattanooga, Tennessee, is a better location for a chlorate plant than Saltville, Virginia or McIntosh, Alabama. Our production costs at Chattanooga are 10 to 15 percent lower. Return on in-
[fol. 2110] vestment is 11 to 19 percent higher at Chattanooga.

And on Page 6 among the conclusions to this report is the statement that a 40-ton-per-day sodium chlorate plant using plantinized titanium electrodes reduces the investment $375,000 or 11.7 percent, and on Page 7 it is recommended that Chattanooga be given more detailed consideration as a location for a sodium chlorate plant, and it is also recommended that the platinized titanium electrode be tested in a prototype cell in order to better evaluate the method of operation outlined in this report.

On the basis of the conclusion and recommendations of this report and also the material in the report which has not been read, can you tell us what response this report met with in your department and thereafter from management?

A. I don't recall of any specific response from management. Our department, of course, felt optimistic about this Chattanooga location. You will also note that in this particular instance we were thinking of the platinized type titanium anode about which we didn't know too much as far as the utility of such anodes in a protoype cell and we were asking for permission here to explore it further.

[fol. 2111] Q. And was that permission granted?

A. Yes.

Q. By whom and when?

A. Mr. Block, and as to the time I don't recall the exact date.

Q. Was it likely to be around the date of the report around the early part of May '59 as far as you can recall?

A. It's possible.

Q. Was any action taken on the recommendation that Chattanooga be given more detailed consideration?

A. I don't recall any specific action taken on that location. I would, however, like to add that we were encouraged to give consideration to the construction of the prototype chlorate cell which would use platinized anodes.

Q. And did you in fact build such a prototype?

A. No, sir.

Q. What happened between the time Mr. Block authorized you to proceed and thereafter with respect to this matter?

A. I think you will find in the records our approaching [fol. 2112] Vickers-Krebs for help in design of a prototype cell and negotiations toward trying to develop an agreement that would permit us to work with Vickers-Krebs.

Q. Was Mr. Block's authorization for you to proceed with the platinum anode confined to proceeding by way of agreement, with possible agreement with Vickers-Krebs or were his orders more general than that in simply instructing you to proceed with the development of a prototype or platinized titanium anode by any means available?

A. You are speaking now of the prototype cell?

Q. Yes, sir, if you believe——

A. Because prior to that we were doing something in the laboratory all along on platinized titanium anodes.

Q. Is there a difference between the anode and a cell?

A. The anode is an integral part of the cell.

Q. Is it the critical part insofar as the use of platinized titanium is concerned or are there additional technological problems over and above the development of the anode?

A. The construction of a cell in itself, large commercial [fol. 2113] cell I am speaking of, is a problem.

Q. But the technological problems with which Olin was grappling at this time, did it center on the anode, whether the anode would be of carbon or of platinized titanium,

or were there a number of problems which perplexed you, of which the anode was only one?

A. Specifically we were anxious to test out the usefulness of a platinized anode. Our report shows that we thought we could make chlorate cheaper if our laboratory studies were real and could be confirmed on a larger unit. Therefore a quest for knowledge on a prototype cell was tied in with the use of a platinized anode.

Q. The affirmative steps we were taking as a result of this second recommendation in Report No. 510 was that you proceeded or you continued your negotiations with Vickers-Krebs for the purpose of trying to arrive at an arrangement for joint exploration of the platinized titanium anode, is that correct?

A. That's correct.

Q. But no work was in effect done in your own laboratories of building a prototype of that anode?

[fol. 2114] A. Except perhaps for design work at a desk. To the best of my knowledge, no work was done in the laboratory or in the pilot plant to construct a prototype cell.

Q. The recommendation here was made in May 1959 and your negotiations with Vickers lasted through the balance of '59, is that correct, sir?

A. I believe so.

Q. During this period of time, didn't you become anxious about the delay in proceeding with a prototype cell?

A. It's only natural that I would.

Q. Why was it that Olin did not during this period go ahead on its own rather than rely on unsuccessful negotiations with Vickers?

A. Simply because we felt we could move faster if we brought in a concern that had a thorough knowledge of chlorate production and the conventional cells being used which could help us develop a prototype cell incorporating the platinized titanium anodes.

. . . . . .

[fol. 2115] Q. I turn now to Electrochemical Survey Report U-2.501 entitled Summary of Sodium Chlorate Plant Studies. The report is dated July 15 and typed July 20,

1959 and is stamped OD 231. Do you recall the circumstance which led to the preparation of this report, Dr. Wojcik?

A. Offhand, I do not but quite likely Mr. Block requested that it be prepared.

. . . . . .

[fol. 2116] Q. On August 18, 1959 there is a memorandum addressed by you to Mr. Block. The document is marked Olin C 418. Do you have a copy of that before you?

A. I do.

Q. There is a reference in the first sentence of the last paragraph to Vickers-Krebs having little if anything to contribute to cell development and to the favorable approach which Vickers-Krebs personnel took to a joint venture under "our terms".

Could you enlighten us as to both aspects of that sentence? What did you find out about Vickers-Krebs ability to contribute to the cell development program? Then, secondly, what did you mean by a joint venture under "our terms"?

A. I am referring now to a chlorate cell capable of [fol. 2117] utilizing the new platinized anode. It was our thought that they had sufficient knowledge at that time to help us quickly design a cell which would permit us to test out the new anodes and when it developed that they did not have such information then they were more inclined to consider the terms under which Olin was proposing that we jointly develop a cell embodying this new principle of platinized anodes. It is very simple. Our terms, if you refer to some of the documents that were passed back and forth indicated that we wanted Vickers-Krebs to put up the same amount of money as we were going to put up. Initially they objected to this. The feeling on their part was that they already had a lot of know-how that they would throuw into this package and that was worth something. Later it developed they didn't have the specific know-how that I referred to.

Q. When you learned that they did not have the specific know-how that you have referred to for what reason did you continue to pursue the Vickers-Krebs negotiations

rather than starting a crash program or development program of your own to develop the platinized titanium anodes?

A. Vickers-Krebs having built several sodium chlorate [fol. 2118] installations were in a much better position than we were to draw on their background to help design the type of cell that would permit us to test this out. We wanted that information.

. . . . . .

[fol. 2119] Q. Outside of the documents that we have already covered, can you recall—subsequent to your report in the July 1959 division manager's opinion, can you recall any discussions which you had with other people in the company with regard to the proposal to construct a facility at Chattanooga?

A. Offhand, no.

Q. Did you at any time promote or encourage or advocate that a plant be built at Chattanooga?

A. Specifically, no.

Q. What do you mean by, specifically, no?

A. That is that specific location.

Q. Was there another location that you did advocate at any time?

A. I personally never advocated any specific location but I was always anxious for Olin to get into the production of sodium chlorate and, especially if they used a process that research and development had perfected.

Q. Apart from your own associates in the research [fol. 2120] and development department, were there any—do you know of any members of management of the Chemicals Division who agreed with you that Olin's research and development should be effectuated by Olin's construction of a sodium chlorate plant?

A. Well, it's only natural that management would first look to its research department for the development of a new product and new process.

Q. I believe you testified earlier that Mr. Block had upon the receipt of that report dealing with manufacturing of sodium chlorate been quite enthusiastic or favorably impressed with Olin's sodium chlorate research and development and that he gave instructions with respect to pursuing that interest. Can you tell us when Mr. Block, when,

if at all, Mr. Block changed his mind about Olin's entry into sodium chlorate production with Pennsalt rather than on its own?

A. I can't recall the specific dates but I can tell you, it came to me as a surprise and a sudden shock.

Q. And, when it came to you as a surprise, was it at the meeting that you already referred to in late '59?

[fol. 2121] A. Yes, with Mr. Block in his office.

Q. And, it is your testimony that he gave no reasons, he simply told you what the decision had been?

A. That is correct.

Q. Do you recall, Dr. Wojcik, the letter which you wrote to Mr. R. K. Thoman to Vickers-Krebs on November 9, 1959? This document is numbered C-412.

A. Yes, I remember this document.

Q. That letter indicates on its face that a copy was sent to Mr. Block. Had the contents of the letter been previously discussed with Mr. Block?

A. Quite likely.

Q. Would it have been likely that you would have written this letter, giving Olin's assurance in the third paragraph that quote We would give your company a preferred position providing everything is equal to what will be available from others, unquote?

A. Read the question back, please.

(Whereupon, the pending question was reread by the reporter.)

Mr. Barnum: Is it likely that he wrote the letter?

[fol. 2122] Mr. Freed: That he would have written the letter without authority from Mr. Block, giving assurance.

Mr. Barnum: Well, now, I don't know that I want to accept your characterization of the document, giving assurance; certainly, the document speaks for itself in that regard. Is the question, whether of not he consulted Mr. Block before writing the letter?

Mr. Freed: That question is acceptable.

By Mr. Freed:

Q. Would you answer that question?

Mr. Barnum: Would you read that question to him, please?

(Whereupon, the pending question referred to above was read by the reporter.)

A. Quite likely, I did.

By Mr. Freed:

Q. Can you tell us what you meant by the next to the last sentence in the letter where you said, "I feel rather strangely about the benefits which our companies will derive from a joint study?"

[fol. 2123] A. I think there is a typographical error there. "I feel rather strongly about the benefits which our companies will derive from that joint study."

Q. It does make much more sense.

A. Yes.

Mr. Freed: Off the record.

(Discussion off the record.)

By Mr. Freed:

Q. Following that letter of November 9, Dr. Wojcik, do you recall meeting with Mr. Spence of Vickers-Krebs on November 24, 1959, at the Park Avenue office in New York?

A. I do.

Q. And, can you tell us what the result was as indicated by Vickers-Krebs to the proposal or to the basis on which Olin was willing to proceed?

A. In general, they were anxious to work with us and were willing to consider any reasonable proposition.

Q. How close did the company come to an agreement at that meeting?

Mr. Barnum: That's a hard question to answer, don't you believe? It's a characterization of a status and nego-[fol. 2124] tiations, did they agree or did they not agree; it's one thing how close they come to an agreement; I would hesitate to ask my witness.

By Mr. Freed:

Q. If that question can be answered by you, I would appreciate it if you can tell us in your own opinion, how wide the margin was or how close together the companies were in terms of reaching an agreement?

A. We were making progress.

Q. And, can you tell us from that meeting on, just what transpired in your negotiations with Vickers prior to the time that you notified them that the deal was off?

Mr. Barnum: What deal are you referring to, Mr. Freed?

Mr. Freed: The contract towards which the parties had been negotiating.

A. You are referring to the Vickers-Krebs deal?

By Mr. Freed:

Q. To the negotiations which you had, of carrying on with Vickers-Krebs, looking toward a joint development program on sodium chlorate cells.

A. It hinged on two things; one was our trying to get [fol. 2125] Vickers-Krebs to contribute some funds for this development and Vickers-Krebs wanted some assurance from us that they would get the opportunity to build a sodium chlorate plant and I think that the records speak for themselves as to what position I took on giving them a preferred position.

Q. On January 26, 1960, you wrote a letter which is now marked Olin C-406 to Mr. Spence of Vickers-Krebs in which you stated that some complications had arisen at our end. Can you tell us what that letter was referring to?

A. I am not certain but it seems to me that at that time I was pushing for an answer from Mr. Block as to whether we should proceed or not with these negotiations at some more rapid pace and it seems to me that he indicated he is not at that time prepared to discuss the subject matter with me.

Q. At this particular—the point at which you were writing this letter, you had already received Mr. Block's instructions, concerning the—Mr. Block's information, concerning the—Mr. Block's information, concerning the Pennsalt joint venture, is that correct?

A. I believe that is correct.

[fol. 2126] Q. And, at this time were you still attempting to have Olin proceed with the Vickers-Krebs negotiation, even though Olin was going to be engaged or despite the pendency of the Penn-Olin project?

Mr. Barnum: That letter is quite to the contrary; you asked him if he disavowed the letter.

Mr. Freed: No; I am asking the witness what he attempted to do within the Olin organization which actually is reflected by this letter; I believe that Dr. Wojcik has just testified that he wanted Mr. — that he wanted permission from Mr. Block to proceed with Vickers-Krebs despite the Penn-Olin negotiations, is that correct, sir?

A. That is right.

By Mr. Freed:

Q. And, was any reason given to you by Mr. Block for requiring that you terminate the Vickers-Krebs negotiations?

A. I don't recall any reasons given at this time; my personal feeling was that even if an agreement had been consummated with "Penn" on the formation of Penn-Olin, anything that we would come up with as a result of our joint venture with Vickers-Krebs might be useful in a new [fol. 2127] installation, so naturally, I was anxious to proceed with the rest of this development.

Q. Did you learn at any time subsequent to this letter what Mr. Block's reasons were for asking you to terminate the negotiations with Vickers-Krebs?

A. Yes.

Q. And what was the reason?

A. I don't recall Mr. Block told me that; whether I was told by Mr. Block or whether I read it in print first that Penn-Olin was being formed.

Q. I believe, sir, that you testified that before you wrote this letter, you knew that Penn-Olin was being formed and I don't quite understand your answer insofar as——

A. I can explain that. My reference to Penn-Olin previously had been on the basis that I heard there were discussions and shortly after I had written this letter, I realized that Penn-Olin has been formed; does that clarify this situation?

Q. Yes, sir; thank you, sir.

Mr. Barnum: Excuse me. By, Penn-Olin being formed, you are referring of course to there having been an agree-

[fol. 2128] ment between Penn-Olin and Pennsalt to form a joint venture?

A. Again, I say, I am not sure whether I heard that from Mr. Block or whether I had seen it first in print, in a magazine or a report of some kind.

By Mr. Freed:

Q. Did there come a time after the writing of this January 26th letter when you did tell Mr. Spence that negotiations were terminated or that you communicated with him on the subject matter of this letter as indicated in the third paragraph what you planned to do?

A. I don't recall having said anything to Mr. Spence; I assumed he would have seen the decision made by Olin in print and didn't think it was necessary for me to say any more about it; however, again, I repeat, I still would have likely gone ahead on the development of a chlorate cell, incorporating platinized anodes.

. . . . . .

[fol. 2129] Q. Dr. Wojcik, the recommendation which your department made in mid 1959 as reflected by division management meetings, was that Olin consider a 15,000-ton per year sodium chlorate plant. To the best of your knowledge and apart from any consideration of platinized titanium anodes, would Olin have been able to embark on the commercial production of sodium chlorate in that quantity if a suitable occasion were found?

A. Disregarding profits?

Q. No; just disregarding the technological problems in connection with the platinum anode; in terms of technical competence to engage in the business?

A. I think I have already stated that if life depended [fol. 2130] on it, the answer is yes, we could have gone ahead; now, whether we would make any money producing sodium chlorate, that's something else; all of our reports have indicated that it was rather marginal until we started talking to people like Vickers-Krebs, it helped us realize what some of the problems are that we were concerned

with and it was not necessarily as serious as we had thought.

Q. I don't understand what your are referring to, problems that were not as serious as we thought. Could you spell that out for us, please?

A. Yes; I had referred to problems involving corrosion, involving the consumption of the carbon anode and yields; we had no sound basis on which to evaluate how these things would change in a large installation and it wasn't until we started talking to people like Vickers-Krebs that they gave us some data which made us realize that it may not be as serious as we initially thought it would be.

Q. If those problems were not as serious as you had initially thought, why then do you raise a question as to the economic feasibility of Olin's entry into the sodium [fol. 2131] chlorate production?

Mr. Barnum: This is as a technical matter or as a business decision?

By Mr. Freed:

Q. As viewed from your position as head of research and development?

A. We didn't have the detailed information necessary to design and construct a sodium chlorate plant; however, after talking to Vickers-Krebs, we had some assurance that this could be a profitable venture for us but, mind you, again I say, we didn't have the detailed experience—we didn't have the experience; we didn't have the background; I'm specifically referring to our economic studies.

Q. Was Vickers-Krebs willing if a satisfactory agreement could be reached, to construct an entire sodium chlorate plant for Olin?

A. Yes.

Mr. Barnum: Satisfactory to whom?

Mr. Freed: The party.

Mr. Barnum: In other words, if Vickers and Olin entered into a satisfactory agreement, Vickers was willing [fol. 2132] to carry out their part of the agreement, is that the question and answer he has to conclude?

By Mr. Freed:

Q. Dr. Wojcik, as you viewed Vickers-Krebs' offer to Olin, was Vickers-Krebs capable of building for Olin a commercially usable, commercially feasible sodium chlorate plant?

A. I believe they were; I would, however, like to refer to statements that I have made previously wherein it was my feeling a concern like Pennsalt who was in the production and had one of the newest plants going and had more up-to-date information than Vickers-Krebs.

Q. Did you state that in your belief Pennsalt did have more information than Vickers-Krebs?

A. I felt that that was so, yes.

Q. To your knowledge, has Vickers-Krebs built any sodium chlorate plants for itself or for anyone else within the last five or ten years?

A. I don't recall offhand.

Q. Does Vickers-Krebs enjoy a reputation for being a competent contractor for the construction of Turnkey [fol. 2133] sodium chlorate plants?

A. I believe that is correct.

Q. But, are you saying that you do not know, you could not know whether that reputation is a current reputation or is only a past reputation?

A. That is correct.

Q. Did you personally have any doubts about Vickers-Krebs' capability of building a commercially feasible sodium chlorate plant for Olin?

A. Disregarding profits, I would say I had no doubt about their ability to build a commercially feasible chlorate plant.

Mr. Barnum: What, Mr. Freed, may I ask is a commercially feasible chlorate plant?

By Mr. Freed:

Q. Dr. Wojcik, you have used the term; how would you define the term as you have used it in your testimony?

Mr. Barnum: He used it in response to your question.

Mr. Freed: I think it's the witness' definition of words that he used that will constitute the evidence in this case [fol. 2134] and not the testimony of counsel.

Mr. Barnum: Let's hope so.

A. I can answer that by saying, in my opinion, a commercially feasible chlorate plant would be one—could make a product and make it at some profit, not necessarily the highest profit.

By Mr. Freed:

Q. Did Mr. Block or anyone in the higher management echelons of Olin at any time indicate to you that they did not wish to proceed with Vickers-Krebs because of doubts concerning Vickers-Krebs' ability to build Olin a commercially feasible plant?

A. No one to my knowledge, Block or other people in management doubted the fact that Vickers-Krebs could put up a going plant.

Q. At any time during your own responsibilities at the sodium chlorate and research and development program, was any question raised concerning 15,000-tons per year as a commercially feasible size of sodium chlorate plant?

A. No.

Q. We have—we referred several times in today's dep- [fol. 2135] osition to Mr. A. J. Holmes who was the author of several Electrochemical Survey Reports. What was his position in your department during the time that he was working on these reports?

A. He was an electrochemist reporting to Dr. Gardiner.

Q. Approximately how long was he employed by Olin?

A. I don't recall the exact dates; it might have been four years and, I am sorry to say, I can't tell you whether he is still with us today or not.

Q. In the economic portions of the Electrochemical Survey Reports which we have discussed today, were the economic studies made under your supervision and by your department?

A. That is essentially correct.

Q. And, in the normal development of technological and economic studies for the development of a new product by Olin, did your department have responsibility for the economic studies as well as the technological work?

A. That is correct; we, of course, did not have sole responsibility; some other department as for example operation itself might check our findings in our reports.

[fol. 2136] Q. As you look back on the research and development work done under your supervision in the years 1955 to early 1960 on sodium chlorate, why didn't Olin achieve the development of a satisfactory chlorate cell?

A. Because we did not go ahead and confirm our laboratory findings in the pilot plant; there's quite a difference between results which you find in the laboratory as compared to how the reactions are going to behave on a large scale; we never got to the point where we put up the pilot plant to prove out these laboratory findings.

Q. During your ten years as head of the research and development department, have you successfully pioneered from Olin's point of view the development of other new chemicals, of any other chemicals?

A. Yes.

Q. Can you give us an example?

A. Pentachloronitrobenzene.

Q. Did the development of that chemical involve a pilot plant operation?

A. It certainly did.

* * * * * * *

[fol. 2137] By Mr. Freed:

Q. Can you isolate for us, Dr. Wojcik, the circumstances that—strike that. Can you fix, Dr. Wojcik, a time between [fol. 2138] 1955 and 1960 when from a research and development joint of view you were prepared to embark on a pilot plant sodium chlorate operation?

A. I can't fix the exact date but after we had demonstrated in the laboratory that the platinized anode looked promising, we were recommending that we be permitted to pilot plant that development and at that particular time is, I recall the period when we were rather anxious, speaking for the division now, to get into the chlorate production and we didn't feel that we would have the time necessary to go through a pilot plant development; that is why we were seeking help on the outside; when I say, help on the outside, I was referring specifically to the joint venture with Vickers-Krebs in the development of a prototype cell.

* * * * * * *

[fol. 2139] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 407

Baltimore, Maryland.

EXCERPTS FROM DEPOSITION OF JOSEPH LEONARD WOOD
TAKEN ON SEPTEMBER 7, 1961

* * * * * * * *

[fol. 2140] AFTERNOON SESSION

1:30 p.m.

Whereupon, JOSEPH LEONARD WOOD, took the stand, and, being duly sworn, was examined and testified as follows:

Direct examination.

By Mr. Copley:

Q. Will you state your name and address for the record here?

A. Joseph Leonard Wood, 33 Wendslow Road, Lutherville, Maryland.

Q. What is your present employment with Olin Mathieson?

A. I am Electrochemical Engineer, Project Manager in the construction of a plant.

Q. Did you say, of a plant?

A. For a plant which is now under construction.

Q. And what plant is that?

A. Charleston, Tennessee location.

Q. What plant are you constructing in Charleston?

A. It's an alkali-chlorine plant.

[fol. 2141] Q. Alkali-chlorine plant? That is a plant which produces what products?

A. Caustic chlorine.

Q. Sometimes known as a chlor-alkali plant, that's the term we used yesterday?

A. Yes.

Q. As Electrochemical Engineer, are you assigned specific plants to work on until the completion and then go on to another project?

A. That's essentially correct, with, some follow-up work where problems occur in my particular field of competence.

Q. Aside from your role in the construction, in follow-up work of the plant, what duties do you perform as an Electrochemical Engineer?

A. Essentially trouble shooting; certain problems that occur on efficiency, safety, consumptions, to go in and assist the local management.

Q. Then, your activities might take you to any number of any one of Olin's plants around the United States?

A. At one time or another, I have been at almost all [fol. 2142] the plants.

Q. I see. When will the alkali-chlorine plant be completed at Charleston?

A. I concede for you to call it an alkali-chlorine plant—we are shooting for a target date of February.

Q. Of 1962?

A. '62.

Q. During your employment at Olin, when was the first time you did work concerning sodium chlorate?

A. The first work—if you define work as paper work, in other words, calculations rather than physical work, I would say sometime around 1954 is the first I remember making any type of review of technology.

Q. And what was the review you made?

A. Essentially Olin's available literature.

Q. What was the purpose of your review in 1954 of this literature?

A. The continuing interest that we have in all of the electrochemical processes.

. . . . . .

[fol. 2143] Q. Do you recall what conclusions you reached [fol. 2144] after your study of the material in 1954?

A. The first conclusion I reached on chlorate was, any chlorate plant must be placed in a low-power cost area and that is very, very much so today.

. . . . . .

[fol. 2145] Q. And, what was the work you did in late '57 or early '58?

A. I think, as I said, this work was just strictly reading and perhaps giving an opinion to management, was to review some work that had been done in the research and development with respect to potential sites in which a [fol. 2146] chlorate plant could be situated.

Q. Do you recall what work and material that was that you reviewed?

A. I am almost positive that the first one was comparing possible location in Saltville with the possible location at McIntosh, McIntosh being in Alabama, Saltville in Virginia.

Q. And, what were your conclusions after studying this material as to the relatively—as to the relativity of Saltville and McIntosh?

A. The—there was not too much to choose between the two areas; both of them were poor pay-out plants.

Q. In what respects were they poor pay-out plants?

A. They were outside the TVA power area, and at such, the power costs were very, very high.

Q. Was cost of power at this time a primary consideration in your mind?

A. The cost of power to make chlorate is almost *the* primary consideration, assuming reasonable freight and so forth and so on.

Q. In so far as the question of freight is concerned, [fol. 2147] out of Saltville and McIntosh——

A. My memory is—in fact, I know McIntosh is slightly preferential on freight.

Q. Is the distinction a significant one?

A. Well, if a project is not a good pay out, every difference becomes significant, or if it is marginal.

Q. After you had reached these conclusions, what recommendations did you make?

A. At that time,—I made a number of serious, very serious studies on chlorate locations and reviewed others—made by others and came to two conclusions, that it had to be a plant in the East, it had to be located in the TVA area, it had to be connected with an existing chemical plant.

Q. What are the factors that make it necessary that a sodium chlorate plant be connected with another existing plant?

A. Well, this, of course, you realize is a technical opinion of mine.

Q. Yes.

A. As a result of calculations and, I am sure you will [fol. 2148] get other people to disagree—but these plants are not high tonnage plants and as a result to have the type of management which we insist upon at every location, you just don't have enough production to carry the overhead; it is a question of insufficient real dollar value to absorb a lot of overhead.

Q. Does it make any difference to what type of plant a chlorate plant is connected?

A. Well, there are obvious savings in connecting it with any type of existing plant but to obtain the maximum savings, it should be preferentially—this is preferential, next to an existing electrolytic plant, you would obtain maximum savings that way; the next maximum savings against connecting with an electrochemical plant would be with any chemical plant then of course, the last is just connected to a location where you might have personnel or existing change houses or stuff like that.

Q. Could you clarify the question in my own mind. Give us some examples as to an electrolytic plant; does an electrolytic plant cover many types of plants?

A. Well, electrochemical is a little bit more specific than the electrolytic; for example to make—in this case, of [fol. 2149] course, sodium chlorate, to make chlorine and caustic soda, you also consider that as an electrolytic plant, to make fluorine, which is a project of current interest; they are all made by the electrolytic process, in that they are using a salt; of course, others which are similar is the electrolysis of magnesium chloride—that is a molten electrolysis; the electrolysis of molten sodium chloride gives you metallic sodium and chlorine; the electrolysis of alumina dissolved in cryolite—I can go on and on and on.

Q. In other words, the electrolytic process is the one that is widely used in a number of different chemical plants?

A. Exactly.

Q. You mentioned that you have been giving the question of location for a sodium chlorate plant serious study for a number of years and you outlined your two conclu-

sions; did you reach these conclusions when you first initiated your studies?

A. They came very shortly after it, yes.

Q. And, this has been your unaltered position?

A. I have not changed that, no; they just overshadow [fol. 2150] freight considerations to a great extent; of course, freight comes into it, but you can afford to ship it rather than produce it outside of a low cost power area.

Q. After your review of Saltville and McIntosh in late '57 and early '58, what were the next locations which you considered?

A. In the TVA area; the only corporate installation in the TVA area was one at Chattanooga; it was—it's a metal processing plant and I looked at that very closely to try and take advantage of what existing facilities might be available, even though it was not a chemical plant.

Q. And, what were your conclusions with regard to Chattanooga?

A. It was better than Saltville or McIntosh but still not a fantastically good pay out.

Q. Following your studies of Chattanooga, did you make any recommendations to management?

A. Would you explain what type of recommendations you are referring to?

Q. Well, I think you stated that Chattanooga was better than Saltville or McIntosh but still not a fantasti- [fol. 2151] cally high pay out; in the light of these conclusions, I would just like to know what recommendations?

A. Well, you must remember that my position is essentially technical and I do not go, running around advising management that they build a plant or telling them that they ought to be able to sell it and so forth; essentially, I present the facts that—sticking out my neck—that such and such a plant would cost so much money; the production unit, production cost would be so many dollars per ton in this case and that; on that basis, I would usually have information given to me on expected freight cost against such a location and on that basis, I would simply indicate that we can expect such and such a return on our money.

Q. And, did management call on you to present such recommendations?

A. No.

[fol. 2152] Q. At that time, could you give us an idea of where you fit in the organization or structure of Olin Mathieson?

A. At that time?

Q. Yes, sir, at that time.

A. I was, prior to—just prior to '58, I was plant manager for the McIntosh plant in Alabama and had—was moved to Baltimore as Electrochemical Engineer, essentially to study new plants which the corporation was planning.

. . . . . .

[fol. 2153] Mr. Copley: The document to which Mr. Wood has referred to is from Dr. Wojcik to Mr. Hightower, dated July 23, 1959 and stamped, Olin C-395 "Wood".

I would like the reporter to mark this for identification purposes as Plaintiff's Wood Exhibit No. 1.

(Whereupon, the document referred to above was marked Plaintiff's Wood Deposition Exhibit No. 1, by the reporter.)

. . . . . .

[fol. 2154] By Mr. Copley:

Q. Mr. Wood, at about this time, mainly July or August of 1959, did you prepare a written report reflecting your observations on these Chattanooga studies?

A. No, I do not recall writing a specific report; I am almost sure that any reports I gave were verbally, face to face.

Q. And with whom did you speak?

A. It would be with Mr. Lewis or with Mr. Hightower.

Q. Do you recall what you said to either of these gentlemen?

A. I recall no specific meeting, no; you must recall, I am—you must understand that I would meet with these people maybe half a dozen times every single working day.

Q. During the course of your contact with them, did you give the recommendations or conclusions based on your studies?

A. Most surely, I did.

Q. Could you tell us what the substance of your conclusions were?

A. Yes; the—in general, the research estimates—fol-
[fol. 2155] lowing most research estimates, were highly optimistic; specifically, that—from the research reports and work which I verified, the plant must be in an existing low-cost power area plant with adequate supervision; the overhead would be too high for a plant to be located off by itself; also under consideration was to make what we call "chemical chlorate" simply by using gaseous chlorine; my study and figures showed that to be uneconomical; it would be in effect downgrading chlorine.

Q. When you talked to Mr. Lewis and Mr. Hightower, did you say anything specific with reference to Chattanooga?

A. I would have specifically had said that of the sites under study and consideration Chattanooga was the most favorable.

Q. Is it correct that the only sites which Olin has considered since late '57 are Saltville, McIntosh, and Chattanooga?

A. I can't recall any other sites that have been seriously considered.

Q. Do you recall in what respects the reports of research and development were highly optimistic?

[fol. 2156] A. I feel in amount of capital required and overhead; however, consumptions were accurate, cost of raw materials, these costs were accurate and if I also recall correctly, labor costs were reasonable.

Q. What do you mean, consumptions were accurate?

A. Such as the amount of power required, the amount of salt required, raw materials.

Q. You mentioned that you evaluated the possibility of producing sodium chlorate, "chemical chlorate"; would you elaborate on the considerations at that time?

A. One time, we had an excess of chlorine at Saltville; you can, by taking gaseous chlorine and blowing it into a solution under controlled conditions end up with sodium chlorate; however, to do it economically, you are in effect—I don't mean economically, I mean to do it—you are in effect downgrading the value of chlorine and if you consider that you can sell the chlorine on the market, you have a double investment; to make a single sale of a product

which is already in a saleable form, so that was dropped.

Q. Could you give us the dates on which it was considered and dropped perhaps by referring to your records?

[fol. 2157] A. Not by referring to the records; however, I have discussed it on several occasions with Dr. Gardiner.

Q. Are the records which you would need, do you have them there? Feel free to refer to them.

A. The question is, do I recall when I exactly discussed "chemical chlorate"?

Q. Yes, sir; when this was under consideration?

A. This most definitely must have been in the very early stages of our—of our serious consideration of a plant that I would say probably in '58.

Q. Were there any reports written on the relative merits of producing chlorate chemically or evaluating the chemical process by which you would produce chlorate?

A. I am almost sure there was a research report probably a year earlier in which someone was trying to really more than make chlorate, perhaps to come up with a process which would not downgrade chlorine too much when it was in excess; see, in a chlor-alkali plant, you make 1.1 tons caustic, sodium hydroxide; for each ton of chlorine chemicals of this nature—if you produce them, you must sell them; on occasions, when you say you can sell all your caustic, what to do with your chlorine if you can't sell [fol. 2158] it? So, it has been a long research and development problem, continuing all through the years as to alternate products that you can change one or the other, into when the market is not balanced.

* * * * * * *

[fol. 2159] Q. Did Mr. Hightower or Mr. Lewis ever question your statement that consumption at Chattanooga location was accurately portrayed in these reports that you stated?

A. I—I do not recall that—on any occasion that they doubted the accuracy of my information on this subject, no.

Q. Did Olin give serious consideration to producing chlorate by the chemical process which you described?

A. Not sufficient consideration to do any development work to my knowlege.

Q. You mentioned previously that you and Dr. Wojcik had collaborated on certain investigations; did any of these relate to sodium chlorate?

A. No.

Q. Did——

[fol. 2160] A. Unless, he requested my specific opinion of mathematical or cost figures but we did no specific collaboration with respect to, should we do research work, should we do development work, should we purchase the process or anything of that nature.

* * * * * * *

Q. You referred a moment ago to your statement around July or August of 1959, that the capital requirement figures which you had studied were too optimistic?

A. Yes.

Q. Could you direct our attention to which figures you are speaking about?

A. They were the figures in one of the research reports; I think it was economic location and in going over these figures, in these reports, the figures were sufficiently accurate for comparing the benefits of one location versus another but to use my phrase, "they didn't count the nuts and bolts to give you an operating plant", so that the actual total capital dollars would have been considerably [fol. 2161] higher, higher than any shown; however, they would have gone up uniformly for each occasion so that for comparison purposes, for a preliminary study, I—they were perfectly satisfactory but for a true picture of the total dollars involved in such an undertaking, they were low.

Q. Mr. Wood, would you direct your attention to plaintiff's Wood Exhibit No. 1, which lists four electrochemical surveys and perhaps by looking at this document you can tell us the particular study about which you commented?

A. It was probably parts of all of these.

Q. Then, in summary, you felt that the capital requirements were too optimistic in each of these reports. Did you ever prepare a revision of the capital requirements of the sodium chlorate plant after this study?

A. These reports were sufficiently interesting to show that management might be interested in such a plant; to

go further, you must do what we call, make a definitive engineering study, whereby you actually make certain preliminary drawings for a known site and that would have been the next step and—well, I am not, specifically on record in writing with the company somewhere, or having recommended such a step; I would certainly recommend such a step before proceeding to request moneys to build a plant based on information in this type of report that we have been referring to.

[fol. 2162]

Q. Was such a step recommended, is that your testimony?

A. I do not—as I say, I do not recall going on written record, but I would assure you if asked, I would recommend that a specific engineering study be made from which a definitive estimate could be made.

Q. Has Olin ever prepared a definitive engineering study relating——

A. No, separately, no.

Q. Not separately, you mean?

A. We did it in conjunction with Penn-Olin by United Engineers.

. . . . . .

[fol. 2163]

Q. After you had conducted your studies on Chattanooga during '59—July or August of 1959, when were you next asked to make a study regarding the possible sodium chlorate facility?

A. I do not think I made another study until we were actively working on the Penn-Olin project.

Q. What date do you have in mind when you began working on the Penn-Olin project?

A. Early '60.

Q. Between July or August of 1959 and, in the time you commenced working on Penn-Olin in early '60, did you do any work at all on sodium chlorate?

A. I made many estimates, and the only estimate I recall making was, assuming the research capital figures were accurate—I recall making an estimate showing a hypothetical case of a chlor-alkali plant and a chlorate plant in a low cost power area.

Q. Was this a written report that you prepared?

[fol. 2164] A. No, it would be merely a study.

Q. Was there any particular location which was chosen for the hypothetical case——

A. TVA Area.

Q. That generally——

A. On water at least with the restriction that I put in the hypothetical case to show that my contention that the best economics would occur when there was a chlorine plant, that it would be on water, and that it would be in the TVA Area, and that if those three considerations were met, a new chlorate plant could still be a competitive unit even in such a highly competitive market as chlorate sales.

Q. Were there any other assumptions on which you based your hypothetical?

A. I used basic cost figures for the—for the Tennessee Area having had fairly good information on unit labor costs in that area.

Q. And where did you acquire those figures?

A. It is, of course, my job to know relative labor costs in various parts of the country; I undoubtedly obtained these from our plant in Chattanooga.

[fol. 2165] Q. Did you have any conversations with anyone regarding this hypothetical situation in your conclusions about it?

A. Oh, I am positive that I pointed it out that for a chlorate plant to be successful, that it must be in the TVA Area, it must be on water, and it should be associated with a chlorine or other chemical plant, preferably a chlorine plant.

Q. Do you recall with whom you spoke?

A. Not specifically, no.

Q. Did you talk with Mr. Logan?

A. It could have been direct to Mr. Logan; most assuredly I spoke with Mr. Lewis and Mr. Hightower.

Q. What were their comments on your recommendations?

A. Well, these are not recommendations in my opinion; they are——

Q. Conclusions?

A. Conclusions, based on calculations.

Q. And, what were their comments about your conclusions?

A. They accepted them; they should not—we should [fol. 2166] not consider a chlorate plant all by itself; it just would not pay out.

Q. And, did they accept your conclusions about the location of a plant in the TVA Area and on the water?

A. Yes.

Q. Do you recall who asked you to conduct such a hypothetical survey?

A. Probably no one. It's my job to be in a position to know the best places or it could have been a suggestion from our sales group; it's difficult to say because I make many of these.

Q. Do you recall the months in which you made these, during the period of——

A. No, no, I'm not at all positive.

Q. Do you recall whether it took place in 1960, subsequent to July or August?

A. No, it would be prior to '60; I am positive, well prior to '60.

Q. So, to the best of your recollection, it was sometime subsequent to July or August of 1959, but prior to——

[fol. 2167] A. My recollection is that it was in '59, and it could have been prior to July; it could easily have been.

Q. Mr. Wood, are you familiar with the Whither Reports, the original report and the revision of 1959?

A. I attended one Whither meeting; I think it was the '60 meeting.

Q. Are you familiar with the fact that—strike that question.

Are you familiar with the fact that in the original Whither Report in 1959, Olin had projected a chlorine caustic plant at McIntosh, and a sodium chlorate plant also at McIntosh?

A. Yes, sir. I worked on all those figures.

Q. And, are you——

A. But, the pay-out on the chlorate was not good from the standpoint that there—the capital figures were not the results of a definitive engineering study.

Q. Are you likewise familiar with the revision of the Whither Report, I think in October of 1959 which projected a chlorine caustic plant at Chattanooga and a sodium chlorate plant also at Chattanooga?

[fol. 2168] A. Yes.

Q. Do you know what caused this shift in the Whither Report?

A. The shift—the reason for shifting the location must have been, I am sure, is outside of my competence to answer; it was undoubtedly a sales position.

* * * * * * *

By Mr. Copley:

Q. Mr. Wood, is the chlor-alkali plant at Charleston for which you are now Project Manager the same chlor-[fol. 2169] alkali plant that was initially projected to be at Chattanooga?

A. No, there are a number of differences.

Q. Could you spell those out for us, sir?

A. The size is larger; it involved additional capital because there were no facilities whatsoever available to start with; its position as a site, actual physical site is more favorable than that in Chattanooga; Chattanooga was turned down because there was no room for expansion.

Q. When was Chattanooga turned down?

A. I can't say other than in our own discussions we felt that we would be stimying ourselves, we would be saving dollars but we would be stimying ourselves in the future because of the limited real estate available within the city.

Q. And was the availability of the real estate the primary consideration to move your site from Chattanooga to Charleston?

A. It was certainly one of the major ones.

Q. You stated, sir, that you did not recall when the [fol. 2170] change took place. Can we put some outside limits on that, between August of '59 and early '60, would that be an accurate time space?

A. I simply can't recall the exact date.

Q. What was the nature of your work which you were asked to do with respect to the Penn-Olin venture?

A. Essentially that of technical representative for the Olin portion of Penn-Olin.

Q. With respect to the potential occasion for a Penn-Olin plant, what duties were you asked to perform?

A. Essentially to be sure that the various economic considerations were fully covered; as I recall, we came to the conclusion that if we considered a location for a plant to be built for Mathieson in the future versus an existing Pennsalt plant, the timing—it would mean that the plant could not be built for "X" months later than one being constructed at the plant already in existence; I recall that there was a slight freight favor for East Tennessee over Western Kentucky; other than that, on the site location, that essentially completed my field of it.

Mr. Copley: Off the record.

[fol. 2171] (Discussion off the record.)

By Mr. Copley:

Q. In your last answer, was your reference to some plant to be built by Olin Mathieson, to be built in the future?

A. Assuming that Olin built a plant which they hoped to build someday in our expansion of our alkali chlorine production, we might have a plant in East Tennessee and we had an existing metal plant there which had some facilities which would not have to be duplicated; then, that versus consideration of a Western Kentucky plant and what are the pros and cons, so I would say that the time element would range very very high with such a plant.

Q. As I understand it, Olin had a chlor-alkali plant projected for Chattanooga at that time, is that the plant to which you refer?

A. That is correct; anytime we project one plant, then we immediately project how many other plants can be tied into it to reduce overhead, share overhead.

Q. In your discussions with the representatives of Pennsalt regarding the potential location of the Penn-Olin plant, [fol. 2172] what was said about the possibility of locating the plant in Chattanooga?

A. Absolutely zero—you mean as far as—may I ask clarification of what you mean?

Q. Yes, sir.

A. Do you mean as to whether or not we were going to build a chlor-alkali plant in East Tennessee?

Q. Well, if that were your words, I would appreciate if you would let us know.

A. We would not absolutely let any such words escape; it would merely be in reference to the possibility of location at Chattanooga where we had an existing metal plant.

Q. In other words, you did not announce or disclose to Pennsalt that you had this chlor-alkali plant under consideration?

A. Absolutely not.

Q. What was the reason for non-disclosure on your part?

A. I just don't feel that has to be explained.

Q. Mr. Wood, we would appreciate it if you would ex- [fol. 2173] plain the reason that Olin did not want to disclose the plans for a chlor-alkali plant.

A. We are competitors in the chlor-alkali field and I just don't feel it requires an explanation; I feel it's so self-evident, we just couldn't allow our corporate plans to become public knowledge prior to the proper time for disclosure.

Q. When did construction begin on the chlor-alkali plant?

A. It began in December—actually in November of '60; that's physical field work.

Q. Do you recall when the earliest announcement of that new plant was made?

A. It was made slightly prior to that; I think it was in November, could have been in September.

Q. Do you recall, Mr. Wood, when the decision was made to construct the Penn-Olin plant at Calvert City?

A. It was early '60.

Q. Could you enlighten us as to why disclosure to build a chlor-alkali plant would be prejudicial to Olin; I haven't been in the industry to know why it would be so; it might [fol. 2174] be quite obvious to you.

A. It is very obvious to me; again, a lot of the reasons are outside of my field; it could affect sales contracts if we announced that we were going to build a plant, for example, prior to obtaining the land, you can rest assured that the price of land would be suddenly tripled; if there were problems with connecting—with obtainng road construction, for example, it's that simple. If the plant is built and in operation, you are going to build your own roads. A community will frequently build a road if you are going to locate a plant there and it's still in doubt; there are just hundreds of reasons of that nature; a pre-

mature disclosure could seriously affect you; other than that, competitive reasons also.

Q. Well, confining yourself to the way it might affect Olin in its relation with Pennsalt as a competitor, could you further enlighten us on the way at which this disclosure to Pennsalt rather than the disclosure to the general public could affect Olin's position in the chlor-alkali field?

A. Specifically, no.

[fol. 2175] Q. Could you give us a general idea?

A. In general, they would not keep it as confidential as we would; they wouldn't have the reason to; you could visualize the information reaching a competitor who is just about wondering whether he should double the size of his plant; he could double the size of his plant six months to eight months prior to our being able to construct a grass roots plant; other than that, in the natural reluctance for the corporate information to ever escape prior to public announcement or——

Q. Was this a situation of natural reluctance on the part of Olin or were there specific discussions within Olin which led to the instructions not to disclose?

A. We had specific instructions never to disclose to anyone corporate plans.

Q. But, there were no specific instructions with regard to Penn-Olin?

A. No.

Mr. Barnum: Penn-Olin?

By Mr. Copley:

Q. Or with regard to the Penn-Olin-Pennsalt negotia-

[fol. 2176] tions?

A. I don't feel that I would have been in the working organization for this group had my superiors felt they even had to warn me to keep quiet.

Q. Mr. Wood, did any other factor aside from the time element affect the choice of Calvert City over other possible locations?

A. Certain other costs would be higher in Chattanooga such as salt, if you ask me. It would have to be transported further; I feel that those are the essential—the essential offsetting factors.

Q. Were calculations made which reflect this difference in cost in salt?

A. It was definitely calculated in figures, yes; my recollection, it's almost a dollar a ton difference.

Q. In favor of——

A. Calvert City.

Q. That was the difference in per ton price you gave us?

A. Yes.

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[fol. 2177] Q. Mr. Wood, do you recall the meeting held in New York on August 1st, 1960, which was called by Mr. Osborne?

A. Yes; I think that is the one I attended, August 1, [fol. 2178] 1960—that is right.

Q. Do you recall at that meeting any discussion of the contribution that Olin had made to the process that Penn-Olin would use in its plant?

A. You must realize that the process we are using is essentially a Pennsalt proces in its entirety; other than that, for certain engineering help in specific information on new equipment, it is essentially a Pennsalt process; if you want to ask—if you had any specific point in mind, I would be glad to tell you just how we contributed on this specific item.

Q. I am interested in determining just what Olin contributed to that process in the way of engineering, help or advice or in any other way in which it had contributed; I don't want to get down to specifics.

A. Well, for example, in the selection of the exact equipment for material, solids installed in conveyors; at that time, Mr. Ed Lopker was Vice-President of engineering for Olin with a terrific background in solids handling; he made an excellent suggestion on how to install the conveyors which, of course, only time will show how good this is but in my opinion, was a real assistance in being able [fol. 2179] to move material with less degradation due to friction of the finished product.

Q. Do you recall any other—strike that question. Do you recall any contributions that you made to the process?

A. Yes; I had specifically completed a study of up-to-date information on rectifiers and although I am not an

electrical engineer, I still had the—some of the latest information at my finger tips, perhaps more so than anyone else in the group at the time; I was also of help in determining the true capacity of the plant from Pennsalt's own information.

Q. The study of the rectifiers which you conducted, were these recommendations used?

A. They received consideration in the type of electrical circuitry we employed; the true design though was made by a Pennsalt engineer.

Mr. Copley: I would like the reporter to mark as Plaintiff's Wood Exhibit No. 3 a document entitled Penn-Olin Chemical Company, Capital Appropriation Request, revised August 29, 1960.

Inasmuch as the document, the pages are black, would [fol. 2180] the reporter mark it on the back of the first page, Plaintiff's Wood Exhibit No. 3.

(Whereupon, the document referred to above was marked Plaintiff's Wood Deposition Exhibit No. 3 by the reporter.)

By Mr. Copley:

Q. Could you tell us what this document is, sir?

A. This is what is referred to in Olin Mathieson as a Capital Appropriation Request.

Q. Do you know if the same persons who prepared the original of this document also prepared the revision on August 29, 1960?

A. Most likely, yes.

Q. You participated in the preparation of both of these documents?

A. I did.

Mr. Copley: I am referring to the group of persons listed in the Olin's response to interrogatories, 78. Mr. Barnum, do you know if those are the same people who participated in the preparation of this revision?

[fol. 2181] Mr. Barnum: I have no information to the contrary.

By Mr. Copley:

Q. On Page 2 of this document is the following statement, "A Penn-Olin technical team survey showed the only reliable technical know-how for sale to be available in Europe". Did you prepare this portion of this CAR?

A. Yes, I did.

Q. And, by this statement which I just read into the record, do you mean that—well, strike that question. Could you explain what you mean by this statement which I just read into the record?

A. It means that the only source from which we could purchase reliable information would be in Europe.

Q. Could you not purchase information from a domestic source?

A. Not in our opinion. not reliable.

Q. Is it your testimony that there is no reliable technical know-how available, domestically?

A. For sale—if you add the "for sale" to that I would agree with your statement.

Q. Did you investigate the possibility of purchasing [fol. 2182] know-how domestically?

A. Directly only from one source, a southwestern engineering company which had information concerning a bipolar cell; we were in doubt as to the reliability of the information, whether it was available to us without legal complications and the information only concerned cell construction alone.

. . . . . .

Q. Was any technical know-how offered for sale to Penn-Olin?

A. Yes, by Krebs.

Q. You are referring to——

A. Actually, the parent company is Krebs.

Q. Was this during the visit of the Penn-Olin technological team to Europe?

A. The definitive estimate rather than the definitive offer was forwarded to us shortly after return to this company but the basic information was given to us in Europe.

[fol. 2183] Q. Was the technology which was made available by Krebs a complete technology, by that I mean, the technology that would cover the entire or virtually the entire sodium chlorate plant?

A. It would cover a complete plant, yes.

Q. What were the reasons which led Penn-Olin Chemical Company to decide against the purchase of this technology?

A. One reason was Krebs had never operated a cell of the size which they offered to sell us; the requirement put on us—when I say "on us" I am referring to the Olin portion of the team, by a former Vice-President of ours, since deceased, Mr. Block—that he was not interested in building a plant with unproven equipment; however, units of half the size they proposed have been built and operated for a sufficient length of time for us to give serious consideration to their proposal; a second consideration—these are all technical points and this is still very fresh in my mind—a second consideration was that the European people had not had experience with American types of salts as raw materials and the method of handling them is considerably different; in Europe, salt is more expensive; frequently, it is obtained [fol. 2184] in a crystallized—recrystallized pure state and as such a lot of your problems disappear; our—furthermore, our careful analyses of the relative cost were such that at 25,000 tons per year rating of the plant we proposed, there was a slight dollar advantage in favor of the Krebs plant; however, we knew that this plant that we were proposing had enough excess capacity to produce 26,500 tons. At that rating, the cost per unit ton, the capital cost per unit ton installed swung slightly in favor of Pennsalt cell.

To me, one of the major points on the Pennsalt cell which appealed to me is that it is simple and very rugged; the European cell was a little bit too fancy and a little bit too gimmicky; one of these cells goes on the line and in this country, well, when one of these cells goes on the line, with our high labor cost, we expect that unit to stay there literally up to two years with just routine inspections and then be renovated and be stuck back there and operate another two years; the Pennsalt cell will do that; the European cells definitely require maintenance repairs every two to three months.

[fol. 2185] Q. Mr. Wood, did Penn-Olin consider using the platinized titanium anode in its plant?

A. At no time was that given serious consideration; it is a development for the future.

Q. I would like to refer your attention to a statement in Plaintiff's Wood Deposition Exhibit No. 3, also on the second page, which states, "The major problem facing any competitor would be entry into the portion of the chlorate market where the present growth is taking place. The growth is in the chlorine dioxide bleaching field which is dominated by the Olin Mathieson patent position and to a minor extent by the Solvay position." Could you tell us, Mr. Wood, in what way Olin Mathieson's patent position dominates that field?

A. Actually, that statement is no longer really one hundred per cent true in that Olin has made its patents available to anyone for chlorine dioxide bleaching. However, it's obvious that if someone is going to install an Olin process, they are going to call in Olin sales servicemen and Olin engineers to assist in starting it up which, very obviously gives you a very good foot in the door for selling [fol. 2186] chlorate.

Q. The last page of Plaintiff's Wood Deposition Exhibit No. 3 in part reads as follows: "Estimated freight equalization (1961-2) $5.83/ton; 1963 on, $5.17/ton on 25,000 tons bulk." Mr. Wood, could you explain for us the difference in these two figures, representing freight equalization?

A. I did not prepare this particular section of this financial analysis, although I was undoubtedly present when it was prepared and I have the explanation of that; that would be based on an expected expanded market that the person preparing the market survey expected that the increased sales would be closer to your plant and in a more favorable freight location than the first sales; those are, you must realize, estimates based on where you expect to sell it and how much freight you will have to absorb to get that material to its destination.

* * * * * * *

[fol. 2187] Q. I see. I would like to address your attention to another statement on Page 2 of Plaintiff's Wood Deposition Exhibit No. 3. It states, "For a competitor to enter

this business studies show that the economic size for a new plant would be in the 20 to 25 thousand annual ton size." Mr. Wood, are you familiar with the recent announcement by Pittsburgh Plate Glass of its construction or proposed construction of a sodium chlorate plant of capacity 15,000 ton?

A. Yes, I am; I am somewhat surprised; however, I will guarantee you that that plant is probably truly larger than that; it is usually customary for companies to understate the capacity of their plants in their public announcements. [fol. 2188] However, having been the person that industrially helped build the original plant of Columbia Southern, I know the power cost which is very very favorable; I also know that they have brine available as a raw material and, at much lower cost than rocksalt which we must purchase and their economics are somewhat unusual.

Mr. Copley: I would like to ask the reporter to mark as Plaintiff's Wood Exhibit No. 4 the document from Mr. Wood to Mr. Logan dated July 21, 1960.

(Whereupon, the document referred to above was marked Plaintiff's Wood Deposition Exhibit No. 4 by the reporter.)

By Mr. Copley:

Q. Mr. Wood, are you familiar with this document?

A. Yes, I am very much so.

Q. Did Mr. Logan ask you to undertake a study of the effect of inflation on the Penn-Olin chlorate phase?

A. This is a standard requirement of ours for estimating the effect of inflation on any proposed plant.

Q. In other words, you do this for all products which [fol. 2189] are in works?

A. For an extermely stable high tonnage commodity such as caustic or chlorine, it is normally not required but for items which are produced and sold in smaller quantities, it is part of our standard procedure to estimate to the best of your ability the effect of inflation.

Q. When you sent this report to Mr. Logan, did you talk to him about it, subsequently?

A. I don't recall; I think the report served its purpose in satisfying him.

Q. Did he indicate any reaction to it?

A. None whatsoever that I can recall; it was satisfactory, I am sure, or I would have heard about it.

Q. Did you yourself conduct this study or did you delegate the responsibility somewhere else?

A. I conducted it myself and since some of the cost would involve Pennsalt practices at Calvert City, I checked with Mr. Woodard of Pennsalt to be sure that my assumptions were in line with his thinking.

Q. What were the practices by Pennsalt in Calvert City that would affect your conclusions?

[fol. 2190] A. Labor contracts; their salt contract, their power contract, their steam contract.

Q. Aside from accumulating this material from Mr. Woodard, did you speak to him about this report?

A. The specific effect of inflation?

Q. Yes, sir.

A. Yes, I did.

Q. And what was the substance of your discussion with Mr. Woodard?

A. As I recall, Mr. Woodard felt that my figure, as I represented it was satisfactory, that he found no major flaws in it and I also recall that he felt that before the five years were out, we would effect enough efficiency improvements to offset this inflation trend, you might say.

Q. Have you reviewed this survey subsequent to its submission to Mr. Logan?

A. You mean, have I made another inflationary survey?

Q. Yes, sir.

A. No.

Q. Are the figures which you list here in the conclusions, [fol. 2191] are they valid today?

A. I would have to study it to be sure but labor is going up at about the same rate; the power contract is only subject to a coal escalation clause; TVA assures me that it is firm within the next five years.

Q. What was the basis on which you predicted a $3.00 chlorine increase?

A. That is from the historic curve that—that have been articles written on the price of chlorine versus the price of caustic and that is strictly an estimate——

Q. Was the price of caustic projected on the same basis?

A. That is correct; I have seen such curves in literature,

in magazines; in fact, there have been several articles recently to the effect that most manufacturers feel that chlorine is underpriced and caustic is overpriced but this is merely printed information, historic price rise.

Q. Did you talk with Mr. Woodard in reference to these particular predictions?

A. No; he would know no more about that than I would. [fol. 2192] Q. Did Pennsalt do their figuring on its own prior to talking to Mr. Woodard or at the time you talked to Mr. Woodard?

A. I do not recall whether Pennsalt has such a standard procedure or not.

Q. In connection with your talk with Mr. Woodard, he made no reference to the calculations made, projecting the effect of inflation such as you made here?

A. I note here that it states in my memorandum that Mr. Woodard would expect to attack this question from the sense of the same viewpoint so, other than that notation, I can only guess that Pennsalt has a similar standard procedure.

Q. Did you subsequently talk to Mr. Woodard about any attack he had made upon this question?

A. No.

* * * * * * *

[fol. 2193] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 408

Wilmington, Delaware.

EXCERPTS FROM DEPOSITION OF JOHN O. LOGAN TAKEN ON MAY 15, 1961, AND JUNE 1, 1961

* * * * * * *

[fol. 2194] JOHN O. LOGAN, called as a witness by the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Freed:

Q. Would you state your name and address, sir?

A. John O. Logan, 11 Buchanan Road, Baltimore 12, Maryland.

Q. By whom are you employed?

A. Olin-Mathieson Chemical Corporation.

Q. What is your present position with that company?

A. I am Vice-President and General Manager of the Chemicals Division.

Q. Mr. Logan, how long have you been with Olin-Mathieson?

A. Almost thirty years with Olin-Mathieson and Mathieson as a predecessor.

Q. Can you summarize briefly for us your experience with the Mathieson branch of the company prior to the merger?

A. I started in research for approximately six years, in technical service product and market development for approximately six to seven years, in the district sales office for roughly two years——

Q. Which office was that?

A. Chicago; split into two periods, that was; and at var-

[fol. 2195] ious levels of sales management, including Assistant Sales Manager, and Sales Manager up until the time of the merger. This is approximately the pattern up until that time.

Q. Approximately when were you at the district sales office in Chicago?

A. Actually I was there as a technical representative from about 1937 to 1941 or 1942, and then I was back in 1943 or 1944, as I recall.

Q. Did you specialize in any products at that time, any particular chemical products?

A. The product line of Mathieson at that time was rather restricted, and most of my effort was spent in connection with chlorine, caustic soda, and soda ash—I would say those three, plus some specialty products we were attempting to develop for the paper market primarily.

Q. Would you state for us when Olin and Mathieson merged?

A. As I recall, it was in 1954.

Q. And your position at that time with Mathieson was what?

A. My recollection would be that I was either Assistant Sales Manager or Manager of heavy chemical sales.

Q. After the merger what position did you hold? What was the first position you held in Olin-Mathieson?

[fol. 2196] A. There was no change in that position as a result of the merger. This had no relation to my immediate activity. I do not recollect that there was any change in title or position essentially at that time.

Q. Then either shortly before or shortly after the merger you became Manager of heavy chemical sales, but you were on a straight line-up in the company and the merger did not affect your title or responsibilities, is that correct?

A. That is correct. The merger had no relation to our activities specifically.

Q. And at the time of the merger what were the principal responsibilities that you had in the company?

A. Well, this would be the organizing and managing of the chemical sales force and the development of programs for the marketing of the company's chemical products.

Q. Do you recall when you became Assistant Sales Manager of Mathieson?

A. I can't recall a specific date on that, no.

Q. Is that a position that you held for several yearss?

A. Yes, I would say that was for some period of time.

Q. Do you know when Mathieson Chemical Corporation first developed the chlorine dioxide generation process?

A. Yes. I would like to know how you are defining "develop" there.

[fol. 2197] Q. Well, I prefer that you would define it for us and tell us when you personally first became familiar with Mathieson's interest in a chlorine dioxide generation process. Perhaps you can tell us how it all started.

A. This interest and awareness of the company's interest came almost immediately after my employment by Mathieson in 1931. At that time I was working as a research assistant, and one of the programs we were actively working on involved the production of sodium chlorite, and the production of this material required the generation of chlorine dioxide.

So that from that time forward a large portion of my research effort was directly connected with the generation of chlorine dioxide, the production of sodium chlorite, and the utilization of these two chemicals.

Q. What was the raw material that was used back in the early thirties to produce a sodium chlorite?

A. There are a number of raw materials, but the major ones were chlorate, either sodium or calcium chlorate, and sulfuric or hydrochloric acid. Minor raw materials included lime, caustic soda, carbon black.

Q. Now, at this time in the early thirities was there any commercial use for sodium chlorate?

A. For sodium chlorate?

Q. Chlorate.

[fol. 2198] A. Yes, as far as I know there was.

Q. And what was that use?

A. I am not familiar with the market for chlorate at that time, but it has been used for many years in the match industry, for example, pyrotechnics, as a weed killer.

Q. But your use of it or your familiarity with sodium chlorate back in the early thirities was only in its relation to the production of sodium chlorite, is that correct?

A. That is correct.

Q. When was the Mathieson process patented?

A. You would have to define what you mean by the Mathieson process.

Q. I am sorry; the Mathieson process for generating chlorine dioxide from sodium chlorate.

A. Well, there were a number of such processes.

Q. Well, let's take the most recent one, the one that is now in use in the majority of pulp and paper mills in this country which is known as the Mathieson process. When was the current process patented?

A. My recollection is that the basic work on this process was done in the late thirties, and I would assume that the patents were applied for at that time and issued shortly thereafter. I do not recall the dates on the patents, and there have been subsequent patents on improvements in the [fol. 2199] process.

Q. Is the process which is known in the sodium chlorate and pulp and paper industry as the Mathieson process still a valid patented process or has it expired?

A. I am not sure of that.

Q. Who would know?

A. I suppose our patent counsel.

Q. Leaving lawyers aside, what officer or employee of the company would have charge of the patent position of Olin-Mathieson on processes like this?

Mr. Connelly: That is information that we can readily obtain for you, Mr. Freed. I wouldn't bother to take time on that.

Mr. Freed: Will you furnish to us the date on which the current Mathieson process was patented?

Mr. Connelly: Well, I assume there will be several patents involved, but we will undertake to ascertain which patents and what their status is.

Mr. Freed: All right, fine. Thank you.

By Mr. Freed:

Q. Did you yourself do any work on the formulation of the Mathieson chlorine dioxide process?

A. I don't recollect that I did any work on the specific process currently employed. However, this is in many re- [fol. 2200] spects a technical modification of all of the earlier work that was done.

Q. Do you have any idea when the basic patent or the basic development of this process took place?

A. Yes. The basic Mathieson work and the resulting patents covered the period of the very early thirties.

Q. What was the first use made of the Mathieson chlorine dioxide process?

A. Are you still referring to the present process?

Q. No, sir. From now on, unless specified otherwise, I would prefer that you refer to the Mathieson process as the basic process and any modification in it to date.

A. The basic processes for using chlorine dioxide and/or sodium chlorite were introduced to the paper industry as early as 1937.

Q. How was that introduction accomplished?

A. By the use of sodium chlorite as a practical means of carrying, so to speak, chlorine dioxide, the sodium chlorite being introduced into the pulp to be bleached under a variety of conditions, depending upon the particular mill and the circumstances applicable at that mill as to their process. Chlorine dioxide would then be generated in situ by various techniques, including treatment with acid and chlorine.

Q. Do you recall the first pulp mill at which the process [fol. 2201] was used?

A. The first mill where this process was attempted on a commercial scale was the Tomahawk Kraft Paper Company at Tomahawk, Wisconsin.

Q. Was that mill affiliated in any way with the Mathieson Chemical Company?

A. No.

Q. Back at this time did Mathieson have any paper manufacturing activities?

A. No, sir.

Q. Then the introduction of this process at the Tomahawk Mill occurred approximately in 1937?

A. Yes.

Q. Was it used at any other mills within the next few years?

A. Yes, there were a number of trials and what would be called semi-commercial uses under a variety of conditions in an attempt to fully explore the commercial possibilities.

Q. What were Mathieson's conclusions with regard to the commercial possibilities of that early process?

A. The conclusions were that it was definitely an effective bleaching process, but it was not at that time something that was required by many mills, and therefore it was not a complete commercial success.

[fol. 2202] Q. What was the purpose for which the process was developed?

A. It was to take advantage of the characteristics of chlorine dioxide as a bleaching agent without damaging the strength of the cellulose.

Q. And in terms of the significance of this product to the consumer who would ultimately buy paper, what was the purpose of the process?

A. The purpose was primarily to produce a brighter or white paper with the same strength as the darker paper.

Q. Can you give us the approximate year in which this process first became required—first came into need by the industry?

Mr. Connelly: I am afraid I will have to object to that question on the ground that I do not understand what you mean by being required.

By Mr. Freed:

Q. I understood your last testimony to be that the early Mathieson process was an effective bleaching process but that it was not required. Was that correct, sir? Not required by the paper companies? Would you explain perhaps in a little more detail what you meant by "required"?

A. I believe I said it was not required by the industry. This situation varied from mill to mill, and because of the [fol. 2203] different existing bleaching capabilities from mill to mill one mill might find it suitable, but another would not need it to accomplish the results then required throughout the industry generally.

Q. When did the industry generally first find a need for this bleaching process or for a bleaching process that would accomplish the results that the Mathieson process could achieve?

A. There was significant need in the late thirties, say up to 1940, as evidenced by the fact that some sodium chlorite was sold for this purpose. However, the start of the war and the then imposed limitations on the pulp industry did

away with the normal competitive conditions therein, and it was not until some years after the war when the general need developed again.

Q. The need developed again approximately when after World War II?

A. I would say again this varied from mill to mill, but in the very late forties, around 1950, and in the early fifties.

Q. When the need developed again in the late forties and early fifties what were the terms on which Mathieson made its process available to people in the paper industry?

A. As I recall, the process itself was made available with-
[fol. 2204] out any stipulations. There were certain patents and developments connected with the utilization of the process in terms of bleaching that were made available to the industry on a very modest royalty basis.

Q. Can you describe for us how that worked? In other words, if a paper company became interested in the Mathieson process and they approached the company seeking to use that process what would the negotiations be? What arrangements would be made in a typical instance?

A. There would be a royalty agreement made covering the patents and processes for the use of chlorine dioxide on bleaching as distinguished from the process of generating chlorine dioxide, and this was made available, as I say, on a modest royalty basis.

Q. Were there any purposes apart from bleaching for which the process could be used commercially?

A. Yes, there were.

Q. What were those purposes?

A. One of the early uses was to treat flour. It was also used to treat low-grade tallows and lards. Modifications of the process were used to bleach textiles.

Q. And for any of these uses there was no charge whatsoever for the Mathieson process; is that correct?

A. I would like a distinction here on the word "proc-
[fol. 2205] ess" again, because it is a question of whether we are talking about the process for the generation of chlorine dioxide or the utilization of it.

Q. Let us take it in two parts. For the generation of the chlorine dioxide first.

A. It is my recollection that there were never any charges on this particular phase of the development.

Q. And the second part, a charge for the use of the process—for the use of the chlorine dioxide that was generated?

A. There were certain charges based on the number and scope of the patents that we had covering these various applications.

Q. Could you explain what the economic basis was upon which Mathieson recovered its investment in development of the Mathieson process? In other words, how did you get your money back?

Mr. Connelly: Mr. Freed, I am refraining from objecting, but I do call your attention to the fact that time is moving on and we are still back in the thirties and discussing a subject which does not seem to me to have any conceivable relevance to the present litigation. Do you plan to pursue this topic at length or are you almost at the end of it?

Mr. Freed: Mr. Connelly, I guess that depends on what the witness' answers are. At the present time I am simply [fol. 2206] trying to find out the background of the chlorine dioxide process.

Mr. Connelly: Would you care to put on the record a statement of the materiality that you attach to the testimony you desire to elicit by the last question?

Would you read the question, Mr. Reporter?

(The last question was read by the Reporter as follows:)

> "Question: Could you explain what the economic basis was upon which Mathieson recovered its investment in development of the Mathieson process? In other words, how did you get your money back?"

By Mr. Freed:

Q. It is the Government's understanding that the Mathieson process is used by Olin for the purpose of aiding the sales of sodium chlorate. Is this understanding correct, Mr. Logan?

A. I don't think it is entirely correct, no.

Q. Would you state the respects in which it is incorrect?

A. The Mathieson process of bleaching was originally designed to sell sodium chlorite as a new commercial chemical.

Q. We are talking about the use of the Mathieson process today. Does the Mathieson process today assist Olin or [fol. 2207] any other company in selling sodium chlorate? Does the existence of this process affect your sales?

A. I don't think I can answer that because I don't know to what extent the buyers of chlorate place value on the process that has been installed in some cases for a number of years.

Q. Is it a practice of your company to use the Mathieson process in soliciting orders, in urging sales of any product on any company that uses or might use sodium chlorate?

A. It is not the practice in the sense that it is a part of any program any more than any other service we might develop or provide for our customers generally.

Q. Would it be a fair statement then to say that your company's connection with the Mathieson process is of no particular value in your company's sales efforts on sodium chlorate?

A. I would express the opinion that it doesn't hurt us, but I don't know to what extent it helps us.

Q. In your opinion, sir, can any seller of sodium chlorate find equal access to any pulp and paper company which may be a consumer of sodium chlorate irrespective of whether that company, that seller, has any connection with or knowledge of the Mathieson process?

[fol. 2208] A. As far as I know he can, yes, sir.

Q. Is your company presently engaged in selling sodium chlorate?

A. Yes, sir.

Q. Would you describe for us what is involved in soliciting business, soliciting sodium chlorate business? How does a salesman who visits a company for the first time attempt to sell Olin-Mathieson's sodium chlorate?

A. I don't think I ought to speculate on how an individual salesman does this.

Q. Do you have a sales training program in your company?

A. Yes.

Q. Do Olin-Mathieson personnel who are engaged in the sale of sodium chlorate receive training from your company as to how to sell chemical products generally?

A. Some of them wouldn't; some of the more recent employees would.

Q. Is there any particular training that a sodium chlorate salesman will receive?

Mr. Connelly: You mean as distinguished from a salesman of some other product?

Mr. Freed: Yes, sir.

A. No, sir.

[fol. 2209] By Mr. Freed:

Q. Then it is your position that any chemical salesman is capable of selling sodium chlorate to the pulp and paper industry?

Mr. Connelly: I take it you mean in putting that question any salesman of equal ability?

Mr. Freed: I accept that qualification.

A. Yes, I would say any salesman of equal ability ought to be received in a normal manner by any consumer of his product or any others.

By Mr. Freed:

Q. Directing your attention specifically to the sale of sodium chlorate for pulp and paper customers, would you qualify your last answer in any respect? Is there anything unusual, any unusual obstacles, any unusual difficulty, that a salesman may face in attempting to break into selling sodium chlorate to a company that has not previously bought from his company?

A. Not generally. This, however, is a comparatively new chemical as distinguished from some of long usage, and therefore salesmen handling new items have to be more aware of some facets of the picture.

Q. Would you tell us what those facets are?

A. Well, he would need to have a pretty thorough pic-
[fol. 2210] ture of the producing and transportation aspects in terms of geography. He would need to know something about the transportation equipment. He would need a limited working knowledge of the handling and use of the

chemical as opposed to something that was well established and for which the consumer had no such need.

Q. Approximately how long would it take to train a salesman, a salesman of competent ability, to be able to overcome these facets, these problems in selling sodium chlorate?

A. No special time could be given there because this would be just a part of his normal training in familiarizing himself with the products generally.

Q. This is the kind of training that he could secure by working at the job, is that correct, sir?

A. Yes; and if he is a new man in the chemical business we usually give him some experience around our plants and in our laboratories, but this varies considerably.

Q. Can you give us an average time for the training of a chemical salesman in your company?

A. An average would be very difficult. For young men relatively fresh out of school it might be a matter of six weeks of specialized work and maybe anywhere from three months to a half year of a certain type job before they were put out in the field.

[fol. 2211] Q. By a certain type of job do you mean an office job?

A. A standard office job related to the sales function, yes.

Q. Once you have a chemical salesman in the field and you wish to add sodium chlorate to his line, will any additional training or office work be necessary?

A. No.

Q. How did Olin become interested in selling sodium chlorate?

A. When we recognized that the chlorine dioxide usage was going to grow and be economically outside the scope of sodium chlorite, we had to reckon with the fact that sodium chlorate would then become the raw material for the process.

Q. When did that happen?

A. I would say this recognition began in the early fifties and continued to develop until it was apparent that sodium chlorite was not suitable for this particular usage on a large commercial basis.

Q. Would you describe for us the difference between

sodium chlorite and sodium chlorate for use in connection with your process?

A. On the basis of chemical formula sodium chlorate has 50 per cent more oxygen than sodium chlorite and there are differences in the stability of the two materials, all of [fol. 2212] which reflects on the ease with which chlorine dioxide can be generated.

Q. In the early days of the Mathieson process utilization by the industry was sodium chlorite the standard raw material?

A. For chlorine dioxide generation, yes, that is correct.

Q. Was Olin in the business of selling sodium chlorite at that time?

A. Mathieson was in this business.

Q. And can you give us the years during which Mathieson sold sodium chlorite to the pulp and paper industry for use in connection with the chlorine dioxide generation process?

A. It would be my recollection that such sales started around 1935, continued as the process was developed, up until the time of the war, was probably practically discontinued due to the war and the limitations on paper brightness, and was resumed somewhat thereafter and in fact continues on an occasional basis yet today.

Q. Approximately how much sodium chlorite do you sell today for the generation of chlorine dioxide?

A. For the paper industry?

Q. Yes, sir.

A. I don't think I can answer that. I don't know. It [fol. 2213] would be a relatively small amount.

Q. Are there any companies in the paper industry who use sodium chlorite exclusively?

A. For bleaching?

Q. For chlorine dioxide generation bleaching.

A. I am not sure but there might be.

Q. Who else sells sodium chlorite for this same purpose?

A. There is no other U. S. producer of sodium chlorite. There has been some imported material brought in by some distributing houses. I do not know for what use they have sold it.

Q. Olin's sodium chlorite is manufactured only at Niagara Falls, is that correct?

A. Yes, sir.

Q. What is the sales area in which the sodium chlorite is sold?

A. For all uses the sales area would be the entire United States.

Q. Does sodium chlorite have uses apart from pulp and paper bleaching which parallel uses of sodium chlorate?

A. No. Essentially none of the other chlorite uses can be handled by chlorate,

Q. Then confining your answer to the sale of sodium chlorite for pulp and paper bleaching, where does Olin make [fol. 2214] such sales today?

A. As I stated earlier, such sales are quite limited and they might be made at anywhere in the United States a particular mill condition justified the use of chlorite. There is no geographic limitation on the sale.

Q. Once a paper company puts up a chlorine dioxide generation plant using the Mathieson process are sodium chlorite and sodium chlorate interchangeable?

A. In the sense that they might accomplish somewhat the same end result they are interchangeable. He would not use his generator and certain aspects of his operation would be entirely different.

Q. Then would it be correct to conclude that once a company puts in a generator to use sodium chlorate they cannot buy sodium chlorite and vice versa unless there is a change in equipment?

A. No, this is not correct.

Q. Would you correct me then, sir?

A. His chlorine dioxide generator that would utilize chlorate serves no purpose if he uses chlorite, but he could buy chlorite and use it in his mill in place of running his generator, but this becomes a matter of economics and would usually be done only under emergency conditions.

Q. To your knowledge does any paper mill use sodium [fol. 2215] chlorite today other than under emergency conditions?

A. If you assume that his inability to sell his product without further treatment is an emergency, I would say that these are all emergencies.

Q. Could you name for us the sodium chlorite customers of Olin who use sodium chlorite to bleach pulp and paper?

A. I can't name those today, no.

Q. Could you furnish us with a list giving the names of the customers, the location of the plants to which the sodium chlorite is delivered, and the total quantity that is involved? Do you have any idea, sir, of the total quantity that is involved here?

A. I do not. I know it is relatively small, because this would be an emergency proposition generally.

Q. As I understand it, the sodium chlorate industry today sells about 90,000 tons of sodium chlorate per year. Can you give us a comparative figure for sodium chlorite sales?

A. It is a very small per cent.

Q. Would it be in perhaps the 5,000-ton range?

A. Less than that.

(There was a discussion off the record.)

Q. Can you tell us what the peak volume of sodium chlorite sales was in Mathieson's experience, the peak in any one year, and tell us the year, the approximate time when [fol. 2216] that was a good selling product?

A. I suspect—I am trusting to my recollection here. I think that probably 1960 was the best year. This is sodium chlorite for all purposes.

Q. And now limiting your answer to sale for the generation of chlorine dioxide to pulp and paper companies?

A. I don't think I can accurately answer that. It would be some years back.

Q. Could you furnish us the annual total sales of sodium chlorite exclusively to pulp and paper companies for the generation of chlorine dioxide back to 1956?

Mr. Connelly: We will look into that, Mr. Freed, and let you know what we can make available to you.

By Mr. Freed:

Q. What position does Mr. Northgraves hold in your company?

A. He is essentially a technical service representative.

Q. Can you describe briefly for us Mr. Northgrave's responsibilities insofar as they are connected with the Mathieson chlorine dioxide generation process?

A. His responsibilities would be to analyze a particular customer's problems and to make recommendations on the size and type of chlorine dioxide equipment both for gen-
[fol. 2217] eration and for bleaching purposes.

Q. Does Mr. Northgraves in particular or does Olin-Mathieson in general actively solicit the installation of the Mathieson chlorine dioxide process generators?

A. I would say that we have not definitely solicited the installation of generators. We have not shied away from providing information about generators.

Q. Do you only furnish information in this area on request?

A. Only by mutual agreement or understanding with the party who makes the request or customer.

Q. Directing your attention to the first contact between Olin and a potential customer or installation of the chlorine dioxide process, are these contacts usually made by Olin contacting a potential user or by a potential user contacting Olin?

A. Limiting it to the first installation or the first prospect, I have no recollection at the moment who that was and I can't answer the question.

Q. How about the most recent instance you can recall?

A. I don't know how that one would occur and again I don't know the name of the company that has been the most recent one.

Q. Who in your company would be in the best position
[fol. 2218] to tell us how Olin establishes contact with a potential user of the chlorine dioxide process in each case?

A. Well, this contact has been established in most cases for years. It is not a case of establishing a contact with respect to this particular thing.

Q. In other words, is the customer industry closed now? There are basically no new paper companies that are likely to go into this business, this business of using the Mathieson process generators?

A. No, that is not entirely correct.

Q. Well, my question, then, is who in the company can give us testimony as to the efforts made by Olin in respect to installing chlorine dioxide generation plants using the Mathieson process in pulp and paper companies?

Mr. Connelly: I am somewhat confused by the question, Mr. Freed. Do you mean what is the name of each salesman that has ever been engaged in that kind of contact or is there anyone better qualified than Mr. Logan to deal with the subject? I just don't know what you mean.

By Mr. Freed:

Q. Is there anyone better qualified than you, Mr. Logan, to deal with questions as to Olin's efforts in promoting the installation of Mathieson process generators?

A. There probably should be somebody, but this would [fol. 2219] encompass a number of people who had been doing this along with their regular work, and I don't know of anyone who would be particularly qualified to answer the question with respect to any specific time or account.

Q. Does anyone have over-all responsibility for any program in Olin which involves the promotion of the Mathieson process generator for pulp and paper company use?

A. There is no program for the promotion of a Mathieson generator, any more than there is an attempt to sell each and every one of our other chemical products. This is a part of the regular sales organization activity.

Q. Can you tell us the approximate number of Mathieson process generators which have been installed in pulp and paper companies in the past five years?

A. I can't do it on the basis of the last five years.

Q. Is there a more appropriate period for which you could give us an answer?

A. I would judge that in total there are thirty or more Mathieson generators installed.

Mr. Connelly: Mr. Freed, that information has already been furnished to you in connection with the answers of Olin to plaintiff's interrogatories, verified February 22, 1961.

By Mr. Freed:

Q. Is Olin in competition with any other company in [fol. 2220] promoting or urging the use of its chlorine dioxide generator over that of any other company?

A. It is not in competition in the sense that it makes any money off of selling or having a customer install a Mathie-

son generator versus somebody else's generator. It has recognized that one other generator, namely, the Solvay system, has been generally available, and it has therefore accepted this as a competitive process in a rather general way.

Q. Is it a matter of indifference to your company whether a pulp and paper manufacturer installs the Solvay process or the Mathieson process?

A. It is not complete indifference. We hate to see a customer make a mistake.

Q. Is there any benefit to your company that accrues from a pulp and paper company installing the Mathieson process as opposed to a different process?

A. We assume or hope that there is general good will created by this, but we have little evidence to justify a statement that this is true.

Q. In other words, there is no particular benefit to Olin in any of its other activities from the installation of a Mathieson process generator in a pulp and paper mill?

A. I can't determine how much benefit there is. I would hope that there is some and assume there is some.

[fol. 2221] Q. Well, if there is some benefit what would that benefit be?

A. General good will in the customer's relation toward us.

Q. How is that good will translated into money for Olin?

A. Well, there has been a serious question in our minds on many instances as to whether it ever was translated into anything tangible. To the extent that a generally friendly relationship with a customer would reflect in more business to us, we would assume that this might be a result of our efforts with the generator.

Q. Are you familiar with the promotional efforts of your company in the sale of sodium chlorate?

A. In a general way, yes.

Q. Who is responsible or familiar in a more detailed way than you?

A. Well, this would come under our Sales Manager and some of his subordinates.

Q. And the Sales Manager is Mr. Johns?

A. At the present time, yes.

Q. To your knowledge is Olin's connection with the Math-

ieson process generator used in any promotional efforts by your company in the sale of sodium chlorate?

[fol. 2222] A. I don't know of any specific cases where it has been.

. . . . . .

[fol. 2223] Q. Do you consider that Olin has any advantage over any other company in selling sodium chlorate?

A. You mean over any other producer of sodium chlorate or any other seller of sodium chlorate?

Q. Both.

A. Yes, I would assume we have some advantages over certain producers and sellers.

Q. What are those advantages?

A. Primarily a long-standing, concentrated relationship with many of the firms who are prospects for sodium chlorate.

Q. What do you mean by "concentrated relationship"?

A. I mean a relationship that has has multiple facets in terms of time, products, and geography.

Q. How does time figure into this, Mr. Logan?

A. Only in the sense that Mathieson as a company aggressively doing business over the area where many of these prospects are located has been maintaining contact [fol. 2224] with them since we established ourselves as a southern company back in the 1890's.

Q. What is the relationship in terms of products?

A. Through the period of time I have described we have sold quite generally a number of products to the industry, and hence this has called for a repetition of contact and a continuity of effort with the account.

Q. Is that all that you mean by "products"—sales by Olin to these companies?

A. Yes, that is what I had in mind.

Q. Do I understand correctly that the advantages which Olin has over other producers and sellers of sodium chlorate is confined to Mathieson's long history of selling in this area and to a history of selling many products in this area and that those are the two advantages that Olin has over other people who might sell sodium chlorate in this area?

A. I didn't say it was confined to that. I said those are some of the advantages.

Q. Would you continue with your list of advantages.

A. Well, I think we have a generally high level of capability in our sales organization in terms of the number of men and quality of men covering this industry.

Q. Are there any others?

A. We have a geographical multiplicity of producing [fol. 2225] points on other products that has facilitated our serving this industry.

Q. Are there any other advantages, sir?

A. As I mentioned earlier, I think our general effort in the area of pulp bleaching over a period of some time represents an advantage that is pretty hard to put any tangible benefit on.

Q. You have doubts about its value?

A. No, I didn't say that.

Q. Do you have great confidence in the value of this factor?

Mr. Connelly: I object to the form of the question as argumentative.

By Mr. Freed:

Q. Are your pulp bleaching activities of great value in the sale of sodium chlorate?

Mr. Connelly: I object to that question as repetitious. You have gone into the facts now on several occasions and have gotten rather full answers.

Mr. Freed: There may be a difference of opinion on that, Mr. Connelly.

Mr. Connelly: The record will, of course, stand on its own in that respect.

[fol. 2226] By Mr. Freed:

Q. Are there any other advantages, Mr. Logan, that Olin may have in the sale of sodium chlorate to the pulp and paper industry?

A. I don't know of any others of any great consequence for Olin itself.

Q. In your capacity as a sales agent for Penn-Olin are there any other advantages?

A. Yes, the same ones that I have mentioned would apply, but I think the prospect of opening up a new facility that affects the delivery cost to certain locations, and so forth, represents an advantage that we would have, acting for Penn-Olin.

Q. Would that be an advantage to a potential consumer?

A. In some cases, yes, sir.

Q. Is the location at which Penn-Olin will manufacture closer to most of the pulp and paper mills than competitive locations?

A. Not most, but some.

Q. Not most what?

A. Not most locations, but some.

Q. Does your company furnish continuing technical services to pulp and paper companies in connection with the generation of chlorine dioxide?

[fol. 2227] A. It has provided services of one degree or another on bleaching, including this area ever since the 1930's, yes, sir.

Q. Does your company render very extensive technical services to these companies today?

A. I would not call it extensive, although this is a relative matter.

Q. Are they very important services?

A. I would say they are important. They are substantially less than were rendered at one stage of the history.

Q. Are they services that Olin is uniquely qualified to render and no one else can render?

A. Not generally, except with respect to chlorine dioxide bleaching we probably have a greater accumulation of experience than anyone else.

Q. Is the service that you give in connection with chlorine dioxide bleaching in any way related to your ability to sell sodium chlorate?

A. I would assume it is helpful, but I can't place a direct value on it.

Q. Have you recruited any new people in this technical phase of your company's operations within the past several years?

A. Yes, we from time to time add personnel for this

[fol. 2228] effort, because either people retire or move to other jobs.

Q. Approximately how many people in the Olin organization are engaged in rendering technical service on the chlorine dioxide generator or process?

A. At the present time?

Q. Yes, sir, at the present time.

A. There might be four people who would spend a portion of their time, and I would say in most of the cases of the four this would be a minor proportion of their time.

Q. Can you tell us who those four people are?

A. Mr. Woodside, who would spend quite a small portion of his time; Mr. Northgraves, who has spent a fair portion, but at the present I believe is not spending a very high proportion; Mr. Hagan, who is devoting some time to this; and at various times Mr. Hopkins has worked on this. At the moment I don't believe he is active in this area.

Q. Is Mr. Hagan very active in this area now?

A. In terms of man hours he probably is the most active of the four.

Q. Are your activities in this area in terms of time spent increasing or likely to increase?

A. I imagine they will tend to decrease or remain constant, although in the area of bleaching generally we are undertaking certain other work that tends to increase our [fol. 2229] total bleaching effort.

Q. Is that bleaching in connection with the use of sodium chlorate and chlorine dioxide generators?

A. Not directly. It is a general problem of purifying cellulose.

Q. Is this problem of purifying cellulose for the same purpose that sodium chlorate is used or for a different purpose?

A. It is for the general purpose of purifying it. That is about all I can say on that.

Q. My question is directed to purposes for which sodium chlorate is used in chlorine dioxide generation. Are the other bleaching purposes that you have mentioned parallel to these? Are they competitive with these? Or are they simply bleaching activities in another direction, in another field, but not competitive with sodium chlorate uses?

A. They could be all three, Mr. Freed.

Q. Would you state for us then those services or those respects in which your technical services for bleaching purposes are increasing?

A. One specific area is in expanding our laboratory facilities for the purpose of studying bleaching generally.

Q. Would you tell us what all of the elements of the increase are, or is that the most substantial one?

[fol. 2230] A. That is the most substantial one. In other words, we are improving our laboratory ability to study the problems of bleaching generally, not necessarily as related to chlorine dioxide.

Q. Do you have any plans at present to increase the staff that furnishes the technical services now provided by Messrs. Woodside, Northgraves and Hagan insofar as they spend their time in chlorine dioxide generation work?

A. I have no such plans, and I don't know of any.

Q. Can you give us any idea of the amount of money that Olin has put into its chlorine dioxide generation process development?

A. This is a very complex accounting problem. If I had to guess all the costs going back into the thirties, it would be several million dollars.

Q. Approximately how much of the several million dollars has been spent within the past two or three years, say three years, 1958 to 1961?

A. A minor proportion of it.

Q. Are you familiar with the way in which these development expenses have been treated by the accounting officials of your company?

Mr. Connelly: Since 1930, Mr. Freed?

[fol. 2231] By Mr. Freed:

Q. As far back as you have been involved with these companies.

A. I am not familiar with the specific manner. In general, they have been handled as parts of research, as parts of product development, partly on technical service charges, and partly as sales effort charges. The large proportion of the total would probably be in the research and development area over the years.

Q. Approximately how much of the several million dol-

lars that has gone into this program has been returned in royalties or other charges for the use of the technical services and know-how of Olin?

A. Has been returned in what way?

Q. In any way of value to the company?

A. I can't answer that because I don't know what has been returned directly as a result of it.

Q. In terms of the monetary return in royalty charges has the amount of money been substantial?

A. Comparatively small compared to the several million dollars.

Q. Could you give us a figure?

A. You want this limited domestically? Is that what you——

[fol. 2232] Mr. Connelly: Yes, domestically.

By Mr. Freed:

Q. I would prefer that you do not limit your answer. I would prefer that you give us a response in terms of the money returned compared to the amount expended, the several million dollars expended, and the sources from which the income was secured is for present purposes irrelevant to the question.

A. I have never seen an accounting summation of this but I would judge it is less than 10 per cent of the money spent.

Q. In the portion of the development expense which has been charged to product development what product has been developed, or what product is accountable for the allocation to that category?

A. My reference was primarily to sodium chlorite.

Q. In recent years has that changed to sodium chlorate?

A. No. We do not break such charges down on a product basis.

Q. In the category of sales effort charges, what sales would receive an allocation of this development expense?

A. I didn't mean to imply there was an allocation. I meant to imply that if there had been an allocation because we do not actually break our sales charges down by prod-

[fol. 2233] ucts; this is all an integral part of the whole sales effort.

Q. As I understand the last testimony, Mr. Logan, of the several million dollars which you estimate to be the development expense on the chlorine dioxide process approximately 10 per cent has been returned in your opinion——

A. I believe I said not over 10 per cent.

Q. Correction. Not over 10 per cent has been returned in actual monetary payments to the company, and that those payments have been in the form of royalties on the use to which the process was put; is that correct?

A. Royalties on the use to which the process was put?

Q. Yes.

A. Not entirely.

Q. Would you make my statement accurate?

A. There has been a small amount collected on products sold for use in the process.

Q. Would this be over and above the less than 10 per cent we were just talking about or would this be included in that less than 10 per cent?

A. This would be a very minor proportion of the 10 per cent, included in the less than 10 per cent.

Q. What are the products on which the small amounts were collected?

A. Well, our arrangement with Pennsalt actually calls for a small payment per ton of chlorate that they sold [fol. 2234] for use in pulp bleaching.

Q. That payment over a period of seven or eight years has amounted to about a thousand dollars; is that correct?

A. This general order of magnitude, yes.

Q. Is this the only return in the second category of amounts collected on products sold?

A. To the best of my recollection, that is true.

Q. Did Olin collect any money from any other seller of sodium chlorate to a pulp and paper mill using the Mathieson process?

A. Yes, but without direct relation to the use of the Mathieson process.

Q. Would you explain that answer, sir?

A. We made arrangements to grant immunity under our patents for bleaching with chlorine dioxide and collected some money in this connection.

Q. You are now speaking about companies other than Pennsalt?

A. That is correct.

Q. With what companies did you make such arrangements?

Q. The only one I can think of was with the Canadian affiliate of Pittsburgh Plate Glass and with the Electric Reduction Company in Canada.

Q. The Canadian affiliate you refer to is Columbia [fol. 2235] Southern Chemical Company?

A. It is operated under Columbia Southern. I think they call it Standard Chemicals, I believe is the Canadian name.

Q. I don't believe I understand, Mr. Logan, the difference between the arrangement with Pennsalt and the arrangement with the two Canadian companies you just mentioned. Would you explain the difference in arrangement between these two companies with regard to the chlorine dioxide process?

A. They were basically two arrangements, the details of which I won't attempt to recollect. The one with Pennsalt, and actually I believe the one with Electric Reduction, fall in the same category. There was a grant of immunity under certain bleaching patents for which the parties paid a designated amount per ton of chlorate sold for use in bleaching. The other arrangement was an outright, flat-sum sale of the rights under our bleaching patents.

Q. Do you recall what the return to Olin or Mathieson was for the sale of rights to Standard Chemicals?

A. I believe it was $50,000.

Q. And that arrangement permitted, and correct me if I am wrong, Standard Chemicals to sell sodium chlorate in Canada for use in connection with the Mathieson chlorine dioxide process?

[fol. 2236] A. Yes, sir, that is a correct statement.

Q. Then I misunderstood you.

A. The rights were for the granting of immunity under patents concerning the use of chlorine dioxide in bleaching, not the generation of chlorine dioxide, which is the so-called Mathieson process.

Q. When you say "use in bleaching" are you referring to the bleaching of pulp and paper?

A. Yes, sir.

Q. And it is the same process that we have discussed previously that uses sodium chlorate to generate the chlorine dioxide?

A. No, sir.

Q. Would you put the record straight again, please?

A. The collections we made were in relation to patents concerned with the use of chlorine dioxide exclusively in connection with pulp bleaching. This had nothing directly to do with the Mathieson process for the generation of chlorine dioxide.

Q. My question, however, is whether this sale of rights was of value in connection with a bleaching process which could only be used after sodium chlorate had been introduced into a generator?

A. No, sir. These bleaching patents could involve the [fol. 2237] use of chlorine dioxide from whatever source it might come.

Q. In fact, have these patents been used for chlorine dioxide bleaching that involves a raw material other than sodium chlorate?

A. This is a part of the technology that has been employed throughout the paper industry over the past couple of decades, yes.

Q. Then your answer is to the best of your knowledge sodium chlorate is the only raw material used to generate the chlorine dioxide?

Mr. Connelly: I object to your statement as to what the witness answer is. The witness' answer will speak for itself.

Mr. Freed: Would you read the witness' last answer, please?

(The answer referred to was read by the Reporter.)

By Mr. Freed:

Q. When you said "Yes", Mr. Logan, you were referring to the use of sodium chlorate; is that correct?

A. No, sir. I was referring to the process on which royalties—correction: "royalties" is probably not the word—the process connected with the moneys that we collected.

Q. My question was whether to your knowledge this

process has been used in connection with chlorine dioxide [fol. 2238] generated from any raw material other than sodium chlorate?

A. "This process" needs definition. I want to be sure I understand what you mean by "this process".

Q. The bleaching process, the bleaching of paper.

A. O.K. Now could I have the question again?

(The following question was read by the Reporter:)

"Question: My question was whether to your knowledge this process has been used in connection with chlorine dioxide generated from any raw material other than sodium chlorate?"

A. I am not positive that it has.

Q. To the best of your knowledge has a raw material other than sodium chlorate been used?

A. I suspect that sodium chlorite has been used at times as a source of chlorine dioxide under the techniques covered by the patents involved in this.

Q. Turning now to the use of the chlorine dioxide process apart from any of the arrangements that we have just been discussing, is the Mathieson process currently being used for the bleaching purposes covered by those agreements or arrangements that Olin has with Pennsalt, Electric Reduction, and Standard Chemicals?

A. I believe it is, although I believe some of the patents covered in these arrangements have probably expired, but [fol. 2239] the technology practiced is quite likely to be an integral part of the bleaching procedures fairly generally employed throughout the industry.

Q. When was the arrangement with Pennsalt entered into?

A. I believe it was 1953—two or three—three, I think.

Q. At that time was any other company which produced sodium chlorate selling that sodium chlorate for use in a Mathieson process generator? And when I say any other company I mean company other than Pennsalt.

A. I would not know to whom they were selling their products.

Q. Did Mathieson have any chlorine dioxide generators installed in the eastern part of the United States back in 1953?

A. I am not positive of the timetable of generators' installation, but I would suspect that there were probably were a very limited number at that time.

Q. To your knowledge was Pennsalt selling sodium chlorate in the east back in 1953?

A. I have no knowledge of that.

Q. Do you have any knowledge whether any company other than Pennsalt sold sodium chlorate to a Mathieson mill, a Mathieson generator-using mill in the early 1950's.

A. If there were generator installation obviously somebody was selling them chlorate, but I would not know the source of that chlorate.

[fol. 2240] Q. To your knowledge have there been any patent infringement suits brought by Mathieson or Olin-Mathieson in connection with the patents that are related to your Mathieson process?

A. I don't believe there have been.

Q. If your recollection is incorrect, would you advise us? Would counsel furnish us that information?

Mr. Connelly: We will look into that, Mr. Freed.

By Mr. Freed:

Q. I don't believe I asked you when the arrangements with Standard Chemicals and Electric Reduction were entered into. Do you have any recollection on either of those?

A. The Standard Chemical one was comparatively recently, I would say three years ago, three to four years ago. The Electric Reduction one I would judge was in the middle fifties, but I don't recall the exact date.

Q. You are familiar with the fact that American Potash and Hooker Chemical Company are today selling substantial quantities of sodium chlorate to paper mills using the Mathieson process, are you not?

A. I have no knowledge of how much they are selling to the paper industry.

[fol. 2241] Q. Are you familiar with the fact that those companies are selling sodium chlorate to mills using your process?

A. I am aware from sales reports that they apparently are selling, yes.

Q. Can you distinguish for us, in terms of the patent and license and immunity agreements we have been discussing, between the grant of authority to Pennsalt and to Electric Reduction and to Standard Chemicals, on the one hand, and the lack of any authority or license granted to other companies which are engaged in the sale of sodium chlorate for use in Mathieson process generators?

A. The reason for the difference I believe is due to the fact that the parties who made arrangements came and wanted to make an arrangement that clarified the legal situation with respect to the immunities.

Q. In other words, other producers of sodium chlorate may be selling it for use in connection with the same process for which Pennsalt and the two Canadian companies are paying or, in the past, paid for the use of the process?

A. This I believe is correct, although there is a matter of time difference here.

. . . . . .

[fol. 2242] Q. On February 22, 1960, Olin submitted answers to plaintiff's interrogatories, and in response to Item 8 of those interrogatories the following statement was made:

> "If an inquiry as to the process is received, the person or organization inquiring is referred to equipment manufacturers who are able to construct the necessary apparatus."

[fol. 2243] Would those referrals be made by Mr. Northgraves or someone in his office?

A. This would be generally correct, yes.

Q. In the following sentence of that interrogatory response Olin has stated that engineering personnel may be called upon to assist in determining whether or not the process would be appropriate for the particular plant concerned and to assist with the engineering and installation of the apparatus. Is any charge made for any of the services defined in that sentence?

A. To the best of my recollection we have no arrangement for charging any of these services.

Q. And these again are the services that are performed

by the four gentlemen, Mr. Northgraves and three others that we mentioned before?

A. That is correct.

Q. In the first sentence on page 10 of the interrogatory we have just been referring to it is stated that during the past five years Olin has not entered into any formal license arrangement with any domestic person or organization. To your knowledge have there been any informal license arrangements entered into in this period?

A. No, sir, I have no knowledge.

Q. To your knowledge has Hooker or American Potash [fol. 2244] ever discussed the possibility of a license with Olin?

A. I have no recollection of American Potash having ever discussed it. The predecessor to Hooker, namely, Oldbury, discussed it in a casual way and came to the conclusion that under the timing of the patents and the status of the situation that they did not want such an arrangement.

Q. When did that conversation take place?

A. Oh, I don't think there was any formal conversation. This was rather casual and it would go back several years. It might even go back beyond the five-year period.

Q. Going back beyond the five-year period covered by this interrogatory, is it still your recollection that Olin never received any application from American Potash and certainly turned down none with respect to this process?

A. That is correct.

[fol. 2245] Q. As I understand your testimony, Mr. Logan, less than 10 per cent of the development cost of the Mathieson chlorine dioxide process has been returned in terms of royalties and the other direct ways you have mentioned. Do I correctly understand your testimony to be that the remaining 90 per cent is charged to good will?

A. No, not exactly. This total cost includes now a thirty-year period of research and development in connection with chlorine dioxide and sodium chlorite as a source of chlorine dioxide and has been accounting-wise charged off through the years as the costs were accrued, the objective being initially to develop sodium chlorite as a commercial chemical. Therefore this has not been written off as good will in a sense, and I don't know how much good will has

attached to the multiplicity of effort down through the years.

Q. Approximately how much money would you estimate is being spent annually on the development and promotion or technical service involved in connection with the Mathieson process?

A. At the present time and specifically related to the Mathieson process it would be in my judgment significantly less than $100,000 a year being spent.

Q. And that figure would include any research that is going on and any technical service that is given to users of [fol. 2246] the process; is that correct?

A. As directly related to this generation process, yes.

. . . . . .

[fol. 2247] Q. The marketing of sodium chlorate is not the primary objective of Olin in the services it affords to the pulp and paper companies?

A. That is correct; it is not.

Q. Mr. Logan, are you the Vice-President of Penn-Olin Chemical Company?

A. Yes, sir.

Q. Is there an understanding that the officerships in that company will rotate on an annual or periodic basis?

A. There is no understanding. This was mentioned as a possibility and conceivably a desirability.

Q. At the present time are there any plans to rotate any of the officers?

A. Not as far as I am aware.

Q. Do you receive any compensation from Penn-Olin Chemical Company?

A. No, sir.

Q. Approximately how much time do you spend in performing your duties as Vice-President of that company?

A. At the present time I would not say more than 5 per cent. The average will go up this month.

Q. Apart from any duties that relate exclusively to this [fol. 2248] litigation what are your responsibilities and activities in Penn-Olin?

A. At the present time we are quite restricted and limited to a review of any papers that are in the process of

development concerning the company or in connection with the general sales effort for the future.

Q. Why do you say for the future? Has there been any general sales effort up to date?

A. Only in the sense that we are currently selling chlorate.

Q. Is there any other type of sales effort that you will make in the future?

A. No.

Q. When did you begin to make sales efforts on behalf of Penn-Olin?

A. On behalf of Penn-Olin as of the first of this year.

Q. When did you take any action with regard to promoting the sales of Penn-Olin?

A. No specific action has been taken other than the continuation of general sales effort that prevailed prior to the first of this year and some intensification of that on the part of our salesmen in the field.

Q. What general effort was that?

A. Prior to the first of the year?

[fol. 2249] Q. Yes, sir.

A. We have been selling chlorate for several years.

By Mr. Connelly:

Q. When you say "we" I take it you are referring to Olin-Mathieson?

A. Yes.

By Mr. Freed:

Q. During the year 1960, did Olin promote the sale of sodium chlorate, solicit orders for sodium chlorate?

A. We solicited orders. I don't know what you mean by the word "promote", but we solicited orders and sought business, yes.

Q. Were the orders that you solicited in 1960 for the account of Olin-Mathieson exclusively?

A. That is correct.

Q. They were not performed on behalf of Penn-Olin?

A. That is correct. They were performed on behalf of Olin.

Q. Do I correctly understand your testimony, then, that any sales developed during the year 1960 will be accounted for exclusively on the books of Olin-Mathieson and will not in any way be reflected on the books of Penn-Olin?

A. This is my understanding, yes, sir.

Q. Do I understand that all of the sales which have been [fol. 2250] entered on the books of Penn-Olin in 1961 were the result of sales efforts confined exclusively to the year 1961?

A. I don't think any sales have been entered on the books of Penn-Olin as of yet.

Mr. Freed: Would you mark this Plaintiff's Exhibit No. 2 for Identification?

(The paper referred to was marked by the Reporter "Plaintiff's Exhibit No. 2 for Identification.")

Q. I show you, Mr. Logan, a document which has been marked Plaintiff's Exhibit No. 2 for Identification, which has on it a stamp "Penn-Olin C56", and the title of this statement is "Penn-Olin Chemical Company Sodium Chlorate Sales and Earnings, February, 1961."

I ask you to direct your attention to the sales listed on that statement and I ask you, Mr. Logan, when those sales were solicited?

A. Since they were sales in February the orders were probably received during January or early February, and any solicitation directly related to these orders probably occurred in January.

Q. Are you familiar with the sales efforts that Olin-Mathieson has exerted on behalf of Penn-Olin? Have they been carried on under your supervision?

A. Not under my direct supervision, but under my gen- [fol. 2251] eral supervision.

Q. Under whose direct supervision have they been carried on?

A. This is a part of the regular sales function under Mr. Johns.

* * * * * * *

[fol. 2252] Q. Have you made an effort to refresh your recollection completely with regard to the formation, the negotiations leading up to the activities following the creation of Penn-Olin Chemical Company?

A. I have made some effort to refresh my memory. I am not sure that I have been completely successful.

Mr. Freed: Would you mark this as Plaintiff's Exhibit 3 for identification.

(Sales contract Number SC-7 between Olin Mathieson and West Virginia Pulp and Paper Company was marked "Plaintiff's Exhibit No. 3 for Identification.")

By Mr. Freed:

Q. I would now like to show you document which has been marked Plaintiff's Exhibit 3 for Identification and I will ask you to state what it is.

A. This is a sales contract between Olin Mathieson and the West Virginia Pulp and Paper Company covering sale of 500 tons of sodium chlorate during the calendar year 1961 for delivery to their various plant locations.

Q. And I ask you, Mr. Logan, whether you became familiar with the execution of that contract prior to my handing you the contract this morning?

A. I have no recollection of having seen this one specifically before.

[fol. 2253] Q. Do you know whether that contract is entered into by Olin on behalf of itself alone or as representative of Penn-Olin?

Mr. Connelly: I object to that upon the ground that the document speaks for itself.

Mr. Freed: Are you instructing the witness not to answer the question?

Mr. Connelly: Yes.

By Mr. Freed:

Q. Mr. Logan, do you know whether Olin on behalf of Penn-Olin solicited West Virginia Pulp and Paper Company in 1960 for sales of sodium chlorate?

A. For sales in 1960?

Q. For delivery in 1961.

A. Would you restate that now in its present context?

Mr. Freed: Will you repeat the question, please?

(The Reporter then read the last two questions.)

A. This contract, and I didn't observe the date on which it was made, but I assume that it was made prior to the first of the year——

(Mr. Freed hands Plaintiff's Exhibit #3 to the witness.)

A. —it is dated December 22. So that this solicitation was made for this sale in 1960 leading to this contract.

[fol. 2254] By Mr. Freed:

Q. I don't believe you answered the question whether this was made on behalf of Penn-Olin.

A. This is made on the basis that we are developing the sales of sodium chlorate which subsequently may be supplied from Penn-Olin's facility after it comes into production.

Q. I ask you, Mr. Logan, whether the profit or loss on this sale of sodium chlorate to West Virginia Pulp and Paper Company will ultimately appear on the books of the Penn-Olin Chemical Company or whether it is exclusively for the account of Olin-Mathieson.

A. I can't answer that for a certainty because at the moment it is on Olin's books and I don't know that a final decision has been made as to the disposition of the profit and loss.

Q. Mr. Logan, do you know as a fact whether Olin as a representative of Penn-Olin solicited sales of sodium chlorate in the year 1960?

A. As an agent of Penn-Olin?

Q. Yes, sir.

A. Not in the common accepted sense of an agent because there is no agency agreement, but with the understanding that we are in the process of developing a market [fol. 2255] for Penn-Olin.

Q. I ask you, Mr. Logan, whether you know whether Olin solicited sales in the year 1960 as an agent of Penn-Olin in the sense that revenue or profit from those sales

would appear on the books of Penn-Olin Chemical Company?

A. Solicitation in 1960 that pertained to 1961 business is expected probably to be reflected on Penn-Olin's books at the end of 1961.

Q. Then I ask you whether Olin-Mathieson acted as an agent of Penn-Olin in the solicitation of sales in the year 1960.

Mr. Connelly: I object to the form of the question as calling for a legal conclusion. I have no objection to having the witness answer it if he can do so.

A. Well, in the context of what I have just described as being the relationship if this is an agency, then the answer is yes.

Q. Mr. Logan, has a sales agreement between Penn-Olin and Olin-Mathieson been executed yet?

A. I don't believe one has been executed.

Q. Is there an oral understanding that exists between the parties to this venture with respect to a sales agency relationship between Olin and Penn-Olin?

A. There is an understanding that we would undertake [fol. 2256] to make sales of chlorate and develop a certain volume during the present year leading to the supply of this volume from Penn-Olin after its productive facility was in operation.

Q. Mr. Logan, I have a document which in the upper right hand corner is entitled, "Sales Agreement, 7th draft, 3-8-61," which begins, "This agreement made as of the second day of January, 1961, between Penn-Olin Chemical Company and Olin Mathieson". To your knowledge is there a later draft?

(Document handed to the witness.)

Q. I prefer that you not turn over the first page. Is there a later draft that has a different title than that? To your knowledge has a sales agreement later than March 8, 1961, been drafted?

A. I have no certain knowledge of a later draft. There might be.

Q. Mr. Logan, who is responsible for the drafting of the sales agreement between the companies?

A. This is primarily the responsibility of the sales head, Mr. Johns, and his legal advisers within our company and the counterparts in——

Q. To the best of your knowledge are the provisions of the sales agreement which was drafted in March, 1961, being presently used as a basis upon which Olin acts for Penn-Olin?

[fol. 2257] A. I am not certain in respect to all details, but I would say in general this is probably correct.

(Discussion off the record.)

Q. Paragraph 13 of the draft agreement to which I have just referred reads as follows:

> "Market Development. Until such time as the plant mentioned in Section 1 of this agreement is completed and in production, sodium chlorate may be purchased from third parties for Penn-Olin's account by Olin with Penn-Olin's approval for sale by Olin and will be accounted for as follows:—"

And the agreement then lists various provisions.

Can you tell us the date on which that arrangement by which Olin would purchase for the account of Penn-Olin from third parties first came into operation by the parties to this joint venture?

A. I don't recall the exact date, no, sir.

Q. Can you give us an approximation?

A. I would estimate some time in the fourth quarter of 1960, but I am not positive of that.

Q. When was the first time that you were a party to any discussion with regard to Olin's sale of sodium chlorate for the account of Penn-Olin prior to commencement of production by Penn-Olin?

[fol. 2258] A. This probably goes back informally near to the time of deciding to proceed, the question would be, What are we going to do in the interim and how do we handle sales between then and the time the plant did come into production? So this might have been discussed at various times over the last year or year and a quarter, say.

Q. When to your knowledge did Olin first begin to act in terms of that understanding?

A. In the Fall of 1960 obviously looking to the signing of contracts such as the West Virginia contract previously displayed.

Q. In other words, Olin began to solicit sales for Penn-Olin's account in the Fall of 1960?

A. Solicit sales for Olin's account in the sense that Olin is billing the goods and has the contract.

. . . . . .

[fol. 2259] By Mr. Freed:

Q. Was Olin soliciting sales of sodium chlorate in the Fall of 1960?

A. Obviously, yes, sir.

Q. In making such solicitations was it doing so on behalf of Penn-Olin or exclusively on its own behalf?

A. It was doing so in its own name with the recognition that at the initiation of Penn-Olin production the supply of chlorate under the contracts it was consummating would [fol. 2260] initiate from Penn-Olin's production.

. . . . . .

[fol. 2261] Q. In the arrangement which you and Mr. Shanaman designed for the sale of sodium chlorate was [fol. 2262] Olin to be Pennsalt's agent?

A. Is the question, was Olin acting as Pennsalt's agent?

Q. Yes.

A. I guess you could call this as a sales agent for Pennsalt, yes.

. . . . . .

[fol. 2263] Q. Did there come a time after the 1958 arrangement came into operation when you and Mr. Shanaman had further discussions with respect to the produc-[fol. 2264] tion of sodium chlorate in the East?

A. There were several conversations from this date forward, and at exactly what time production in the East was first discussed I can't recall.

Q. Without isolating then any particular date, can you give us the sequence of conversations or the sequence of events which transpired in your negotiations or discussions with Mr. Shanaman on this subject?

A. Well, I believe at the end of 1958, when we were looking to 1959, we had some exchange of correspondence or conversations with regard to the available tonnage in 1959 and subsequently; and it is my recollection that Mr. Shanaman began to express concern over the fact that the market developing on the West Coast was beginning to use chlorate at a faster rate than he had anticipated and therefore there was a question as to how long he could continue to make surplus available in reasonable quantities for movement East because he naturally wanted to supply his natural market near his plant.

Now, exactly when these situations developed, I can't give you exact dates.

Q. Leaving the question of date aside, what was the substance of the first conversation that you had after the 1958 arrangement became operative with regard to produc- [fol. 2265] ing sodium chlorate in the East?

A. Without regard to date we undoubtedly had a conversation to the effect that we were not interested in continuing on a very small amount of chlorate, were not interested in continuing our sales effort on that, and how could we get more chlorate to match the demand that we had in effect begun to create through our effort. And this led to conversation about the possibility of Pennsalt establishing their own production at Calvert City, where they had a plant, or us putting up a facility or us doing the job jointly as via the Penn-Olin route.

Q. What were the considerations discussed by you and Mr. Shanaman with respect to each of these alternatives?

A. It was generally recognized by both of us that we had a contribution to make through joint effort in terms of our experience in the market place and our already established sales position, and that, on the other hand, Pennsalt had established chlorate operating experience, had an established physical location which was reasonably logical for such a new plant to be installed at and probably had more experimental knowledge of chlorate production than we had.

Q. You referred to Olin's already established sales position. What does that phrase mean?

A. I mean that by this time we had already been out selling on behalf of Pennsalt's production.

[fol. 2266] Q. So you are referring then to the position that you had established in selling sodium chlorate?

A. This is correct.

Q. You mentioned Pennsalt's established location. What location was that?

A. Their plant at Calvert City, Kentucky.

Q. Do you recall when Calvert City first became a subject of discussion between you and Mr. Shanaman in respect to a proposed or possible sodium chlorate production facility?

A. This would be in the back of the thinking ever since we started talking about production because we both recognized that you would not want to establish such a facility at a brand new plant location if you had one satisfactory, where a plant was already established.

Q. By your answer do you mean that Calvert City was back of the thinking beginning in 1953?

A. No. In 1953 we had not progressed to the stage where we were thinking of chlorate production. The 1953 arrangement was on a totally different basis.

Q. Well, then, can you recall in terms of time, in terms of the year when Calvert City first became a subject of discussion?

A. I would assume that it was in the minds of both parties from the date we started to make sales for Pennsalt. Whether or not it was mentioned at that time I do not recall. [fol. 2267] Certainly as we approached a decision regarding production we would have to very thoroughly weigh Calvert City as a location.

Q. What were the considerations that you weighed with respect to Calvert City?

A. The fact that there was an existing operating facility already there so that many of the services and capital costs that you are forced to make in starting at a new location would not have to be made, and therefore this had certain economic advantages.

Q. Were there any other advantages that you discussed?

A. Only the advantage that it was reasonably satisfactory as a location from a geographical distribution point to the consuming market that was developing.

Q. Beginning at the time of your first conversation with Mr. Shanaman touching on production of sodium chlorate

at a location other than Portland, Oregon, did Olin thereafter consider producing and selling sodium chlorate on its own?

A. This consideration was always a part of our total thinking. It did not consider it concretely to the extent of completely evaluating a specific project at a specific location.

Q. This thinking had arisen within Olin prior to the time of any conversations with Mr. Shanaman, is that correct?

[fol. 2268] A. There had been people in our company who thought we should be in the chlorate business from back in the 1930's.

Q. And how late did consideration within Olin continue of establishing an Olin production facility of its own?

A. I think it continued up until the time when we talked with Pennsalt and agreed that the best solution was a facility that we both participated in.

Q. And what was that date?

A. Well, we were approaching this late in '59 and then we came up early in '60 and actually began to formalize the thinking on it.

Q. Can you isloate a particular meeting or a particular conversation at which you were present when this materialized?

A. I think one of the meetings that was held in New York either late in 1959 or very early in 1960 brought this issue to a head, and it was generally agreed that we were going to have to act, and act fairly rapidly, and the general conclusion was, well, action together was better than action independently, for several reasons.

Q. What were the reasons?

A. Well, as of that time each of us had an established position that he could put into the joint program that neither of us had acting independently.

Q. Were there any other reasons?

[fol. 2269] A. This is the crux of the reasoning, that by proceeding together at this time we had a much sounder project than either party would be able to establish on his own.

Q. What were the positions or advantages which Pennsalt possessed that Olin lacked independently?

A. Pennsalt possessed actual operating experience and a knowledge of equipment that was currently producing chlorate.

Q. Would that be the principal reason?

A. This is the principal one. The other one, the matter of a geographical location with a going plant was a factor, but actual operating experience was probably the principal reason.

Q. And what was it that Olin had that Pennsalt lacked?

A. Well, Olin had a sales force that covered the marketing area and had already established itself as a seller of sodium chlorate.

Q. Was that its principal advantage over Pennsalt?

A. This was its principal advantage, yes.

Q. What were the subsidiary advantages, if any?

A. Well, each of us had a certain amount of experimental development knowhow that we could throw into the operating and use area, but this was, in Olin's case, a less well-defined reason.

Q. At this time was Olin capable of entering the production of sodium chlorate?

[fol. 2270] Mr. Connelly: I object to the form of the question as calling for a conclusion.

By Mr. Freed:

Q. At this time what were Olin's capabilities with respect to entering on the production of sodium chlorate?

Mr. Connelly: The same objection.

By Mr. Freed:

Q. What was the state of Olin's knowledge in the production of sodium chlorate at this time?

A. Olin's knowledge was limited to generally available public information such as would have been available through the patent records and the technical literature, and secondly a modest amount of experimental work on laboratory-sized chlorate equipment.

Q. How long had the experimental work been going on?

A. Off and on clear back into the 1930's.

Q. How far had it progressed?

A. To a small laboratory unit.

Q. Was that unit capable of producing sodium chlorate in the laboratory?

A. I don't have any recollection of the specific data but I assume it produced some chlorate, yes.

Q. Were there any people in the Olin organization at this time who believed Olin to be capable of producing sodium chlorate commercially?

[fol. 2271] A. This is a very general question because at any time you can find people in Olin who believe Olin is capable of anything.

Q. Were there any people to your knowledge who believed Olin to be so capable?

A. I think there were people who thought that we could probably buy or find operating experience somewhere outside our organization and ultimately develop a satisfactory operation.

Q. Did any such people occupy positions of responsibility within your organization?

Mr. Connelly: Would you mind placing on the record, Mr. Freed, a statement of what you conceive to be the relevance of this line of inquiry?

Mr. Freed: I would prefer to make no statement on that at this time.

Mr. Connelly: Well, I shall object to the question then as not related to any issue in this case that I think of at the moment.

Mr. Freed: Would you read the question please?

(The Reporter then read the last question.)

Mr. Connelly: You may answer the question if you understand it.

A. I think people with some degree of responsibility felt that we could probably do this.

[fol. 2272] By Mr. Freed:

Q. Who were those people?

A. I am sure the man who was in charge of the electrochemical research work felt they could be done.

Q. Who was that, sir?

A. Well, at that stage it would have been Dr. Wojcik and Dr. Gardiner.

Q. To your knowledge were they the only people on a managerial or responsible level who held that view?

A. I think so. At this stage we would not have accepted their thought on this matter without weighing it very, very seriously.

Q. When did their views in this regard first come to your attention?

A. Well, again, Mr. Freed, I have known ever since 1930 that Dr. Gardiner felt that we could ultimately develop a satisfactory chlorate cell.

Q. When to your knowledge did Mr. Wojcik or Dr. Gardiner first make known the view that Olin was capable of producing sodium chlorate commercially?

A. I don't think they ever actually made this view except as an expression of a personal opinion. There was no formal statement on their part that, "Yes, we can do this." Actually, at this time and leading up to this time we had explored other methods of making chlorate parallel to this [fol. 2273] consideration.

Q. Can you recall when their personal opinion in this regard first became known to you?

A. No. This would be a matter of records, I assume. I don't have any personal recollection of it.

Q. What are the parallel avenues that you have just referred to?

A. Chlorate can be made chemically, but it has not been proven to be economically sound to do so.

Q. When was that determination made?

Mr. Connelly: What determination?

Mr. Freed: Would you re-read the answer?

(The Reporter than read the last answer.)

Mr. Freed: I will strike the question.

By Mr. Freed:

Q. When did it prove not to be economically sound to do so?

A. Sometime within the last three years our laboratory people submitted a report to this effect.

Q. What were the bases on which the views of the Electrochemical Research Department were rejected by your-

self and by management with respect to Olin's own ability to enter this production?

Mr. Connelly: I object to the form of the question as assuming facts not yet in evidence.

[fol. 2274] Mr. Freed: Perhaps I didn't understand your objection. What are the facts that were assumed in there that were not in evidence?

Mr. Connelly: The facts stated in the forepart of your question.

By Mr. Feed:

Q. Did Dr. Wojcik and Dr. Gardiner's views in this respect come to the attention of yourself and of the Olin management?

A. Only through the normal research reporting mechanism whereby they would submit information on the effort that they had carried out and the conclusions reached therefrom.

Q. Did you participate at any time in discussions on the subject of Olin's ability to enter into the production of sodium chlorate?

A. I don't recall any formal conversations on this, but this is the type of subject that could very easily have been considered incidental to some of these other discussions.

Q. Did you participate in any such discussions?

A. I recall no specific discussions on that subject.

Q. Has there been any evaluation on the part of Olin of its own ability to enter the production of sodium chlorate?

A. Only the evaluation that a management close to all facets of the business is constantly making and a precept [fol. 2275] that was pretty well established, that we would not go into something that was outside the scope of our then established production experience unless we got such operating experience in other directions.

Q. Was this a determination of inability on the part of the company or of lack of desire on the part of the company to enter this field?

Mr. Connelly: I object to the form of the question as calling for a conclusion.

Mr. Freed: Would you re-read the witness' last response?

(The Reporter read the last answer.)

By Mr. Freed:

Q. What was this pretty well established precept based upon?

A. This was a precept that Mr. Block had regarding production generally, and at this stage he was in charge of the chemicals activities, and he would not have permitted us to go into the chlorate business based upon the status of our technical knowledge as of that time.

Q. Did you discuss this matter with Mr. Block?

A. Yes.

Q. Do you know what his views with respect to Olin's technical knowledge were based upon?

A. Well, I know the state of Olin's technical knowledge [fol. 2276] myself, and I have seen his views expressed on other things of similar nature.

Q. Can you tell us then what those views are based on?

A. The views are simply based on one concept of management which is that you would not get into a business that you did not have actual operating experience in either through your own process development up through semi-commercial operations or you acquired outright from someone else who had such experience and knowledge.

Q. Does your last answer mean that unless Olin were to acquire knowledge and technology from the outside that Olin would not go into a field it had not previously been in? Is that what your answer meant?

Mr. Connelly: I will object to that. I think the answer is perfectly clear and speaks for itself on the record.

Mr. Freed: Would you read the question, please?

(The Reporter then read the last question.)

Mr. Connelly: Will you read the witness' previous answer, please?

(The Reporter then read the witness' last answer.)

Mr. Connelly: Having had that answer read back to you, Mr. Freed, do you now agree that it is phrased in

the alternative and it is phrased in response to your ques-
[fol. 2277] tion as to what Mr. Block's views were based upon?

By Mr. Freed:

Q. Mr. Logan, is it correct that the views you have just expressed were not only those of Mr. Block but of yours?

A. I think this is a sound view, yes.

Q. Would you tell us what you mean by the first part of your answer which deals with Olin's decision or non-decision to enter into a business on which it has no operating experience? I don't understand what that answer means.

Mr. Connelly: Do you mean you don't understand what the term "operating experience" means? Is that your question? Because we can be here in perpetuity if we must always have a general question followed by an answer and then a question as to what does the answer mean. If there is some portion of it you desire to ask the witness about, phrase your question accordingly.

By Mr. Freed:

Q. Mr. Logan, did Olin consider entering the production of sodium chlorate by acquiring experience and information from outside the organization?

A. This was considered in a very general way, yes.

Q. And what steps were taken in furtherance of that consideration?

A. I don't know that any extensive steps were taken
[fol. 2278] because it was recognized that this would involve a period of time which would further delay getting the project into production which at this stage it had become apparent was most desirable at the earliest possible date.

Q. Why was it desirable to enter at the earliest possible date?

A. The sales effort was generating outlets. The surplus supply was drying up, and if we were going to take advantage of the circumstances that prevailed, we had to move reasonably fast.

Q. Were there any other considerations which entered into your determination to act quickly?

A. I think what I have just stated was the principal reason.

Q. Were you aware of the interest of any other companies in entering this business at the time that you were considering it?

A. No companies not already in the business, no.

Q. Were you aware of the interest of Columbia Southern to enter this business?

A. I have assumed ever since they talked to us about an arrangement for Canada that they would have some consideration of getting into the business in the United States, but I had no concrete evidence of that.

. . . . . .

[fol. 2279] Q. Mr. Logan, do you recall attending a meeting in Philadelphia in February, 1958, with Messrs. Drake, Shanaman and Land in connection with a discussion of the sodium chlorate operations in the South?

A. I have a rather dim recollection of this meeting, yes.

Q. To the best of your ability could you tell us what transpired at that meeting?

A. I think this was just a meeting following the pattern of the discussions that I had with Shanaman as to where this whole program was leading, and Mr. Land was introduced into this meeting because I believe Pennsalt had some plans to change the organization and Mr. Shanaman was involved in this picture, and this was in effect bringing the other members of his organization up to date with the conversations that he and I had been having. I don't know of any special subject matter that was discussed at that meeting.

Q. I show you a memorandum to the file prepared by you on February 4, 1958 and ask you whether that document enables you to fill us in a little more on the subject matters that were discussed and the conversations that took place at the meeting in Philadelphia.

A. Well, the memo pretty well describes what took place. [fol. 2280] It was an updating of the conversations that we had had, and, as stated there, there was thinking on Pennsalt's part that production was becoming more at-

tractive and that we would have to face up to that issue before too long, and it referred to the matter of perchlorates because this was a rising development in connection with propellants.

Q. A reference is made in this memo to "our HEF operation". Could you enlighten us on what that was?

A. "HEF" refers to high energy fuel.

Q. Is it true that there is a company in the business known as "HEF"?

A. There is now, yes.

Q. It did not exist at the time of this document?

A. No. Internally we commonly spoke of some of the special propellant effort in terms of "HEF".

Q. I show you, Mr. Logan, an extract from the minutes of the Division Management Meeting of your division held on June 8, 1959, which begins, "Subject facility—" referring to a chlorate facility—"will be discussed this week. It may be either on a joint venture or independent basis." And I ask you whether you can elaborate for us on the subject of the report or conversation at the meeting in which this minute was made?

A. This was probably in the nature of a progress report [fol. 2281] to those members of our organization who had some familiarity with this matter and reported simply that there were further discussions as to proceeding on a joint basis with the production of chlorate.

Q. Is it fair to say that during this entire period, without going into each and every one of the meetings that took place, there was constant consideration and exploration by the two companies wtih a view towards the possibility of a joint venture, and that each of the documents that have been displayed today are simply evidence of the continuing interest in this matter?

A. From the first conversations with Mr. Shanaman the possibility of either of the parties producing independently or both of the parties producing jointly were alternates that were discussed constantly up until the time of the final decision.

Q. Up to the time of the final decision then you did not know whether the exploration you were making in the Southeast would result in a partnership or competition between your company and Pennsalt, is that correct?

A. Did not know for certain, no,—that is correct.

Q. But during this time your principal belief was what?

A. Well, I think it was my principal belief that we would [fol. 2282] come to the conclusion which we did, namely, that the joint project was more sound from all aspects than operation independently.

Q. Did there come a time in the latter part of '59 when you had reason to doubt whether a joint venture would materialize?

A. I think there were doubts all along the way that the economics could be proven out, but I don't know that there was any specific time when there was a more serious doubt than some other time.

Q. I show you a document which is numbered "Olin D-78" and is from J. O. Logan to J. G. Johns, dated November 18, 1959, and ask you to direct your attention to the underlined portion of that document. I wonder if you might simply read into the record the portion which has been underlined and give us any explanation that there may be about the apparent pessimism reflected in that statement.

Mr. Connelly: I object to the form of the question in characterizing it as pessimism.

By Mr. Freed:

Q. I will rephrase the question and ask you whether you would read the underlined portion into the record and state the basis upon which your estimate of probability was made?

A. The underlined statement is "Since in all probability [fol. 2283] we will not proceed with the joint production facility——"

Q. If you wish to finish that, you may do so.

A. Do you want the rest of the sentence?

Q. Yes, so the record is complete.

A. "we should not over-contract at least until there is further clarification following my meeting with Shanaman."

Mr. Connelly: May the record show, Mr. Freed, that the first clause of that sentence which you described as being underlined was underlined by you?

Mr. Freed: Correct, sir.

A. I have no direct recollection of the reason for making that statement. Whether it was something that Shanaman had introduced or whether it was something that we had introduced such as a shortage of capital, or some other reason, I don't know exactly what prompted that statement at that time.

Q. Were the Vickers-Krebs negotiations going on at this time?

A. I don't recall. The record of those instructions versus this date would prove that point.

Q. This is in November, 1959?

A. I would expect that the Vickers-Krebs negotiations had gone on prior to this time.

Q. Had they terminated as of the date of this memorandum?

[fol. 2284] A. I am not sure of that.

Q. Do you have any recollection of a relationship between the Vickers-Krebs negotiations and this statement of probability that there would be no joint venture?

A. No.

Q. Did you participate in the renewal of the chlorine dioxide agreement with Pennsalt in 1957?

A. This was an extension of the original agreement, as I recall. I think I participated to the extent of knowing that it was taking place. I don't know that I actually drew the papers up. I might have even signed it.

Q. Do you recall any discussion at the time of renewal about the application of Olin's license to Pennsalt to sales in Japan?

A. Yes. As I recall, Pennsalt either formally or informally sought to have the agreement extended to include Japan. At some stage prior to the consummation of this extension I discovered that our own International Division was having conversations with people in Japan on a related matter, and, as I recall, we subsequently told Pennsalt that we could not extend their agreement to include Japan.

Q. Do you recall participating in a meeting in Philadelphia on February 4, 1960, one week before the joint venture agreement was signed, at which a number of repre-
[fol. 2285] sentatives of Pennsalt, headed by Mr. Drake and Messrs. Wood, Williamson and Gardiner, together

with yourself, met to discuss the contemplated venture?

A. Yes.

Q. Do you recall the discussions that took place at that meeting with respect to consideration of Calvert City and Chattanooga as two possible locations for a joint plant?

A. This meeting brought together a number of the technical people from the two companies, and, as I recall, we formulated a plant of what would have to be done in order to proceed. By that I mean, we determined that we would have to set up a technical survey team and we would have to generate certain agreements with respect to various aspects of this project.

I think we concluded it would be desirable to evaluate the marketing position out of Chattanooga versus Calvert City so as to be aware of any outstanding difference between the two points, if such existed.

Q. Do you recall whether there was any difference of opinion among the people present at that meeting with respect to which of the locations should be picked?

A. There might have been differences of opinion because most of the people present would be analyzing the situation in the light of their limited view. I think it was rec- [fol. 2286] ognized, however, that we needed a transportation study from both points in order to be certain that we were not obviously on the wrong track in proceeding at Calvert City.

Q. Can you recall who from Olin urged that Chattanooga be chosen as the location?

Mr. Connelly: Well, I am not sure that it has as yet appeared that someone did so urge, Mr. Freed.

Mr. Freed: Excuse me, Mr. Connelly. Let me lay the basis for that.

By Mr. Freed:

Q. Did anyone from Olin to your recollection urge that Chattanooga be chosen as the location of the joint plant?

A. I think there were some people in the Sales Department who said to themselves, "It would be nice if this facility could be located at Chattanooga," and therefore they probably wanted to see this information develop to prove their point, or to disprove it.

Q. As between the Olin representatives who were present, namely, yourself, Mr. Gardiner, Mr. Williamson and Mr. Wood, can you recall which one or more of them, if any of them, urged that Chattanooga be selected?

A. I don't know that any of them would because none of them represented the Marketing Organization as such. Wood and Gardiner represented the technical end of the [fol. 2287] business, and they would recognize as well as anyone their limitations with respect to knowhow.

Q. Mr. Wood's position at this time in Olin was what, sir?

A. He is the chemical engineer in the Operating Department.

Q. Do you recall any discussion at that February 4 meeting of the problem of prorating over the entire market?

A. I don't understand what you mean by "prorating".

Q. I show you, sir, a copy of some handwritten notes which are labeled "Olin D-73" and are marked "Logan", presumably to indicate that they came from your files. The notes carry the date February 4, 1960, and underlined in red are the terms "prorating over entire market" and on the second page "problem of one-sided need".

I ask you whether reference to those notes, if that is a copy of your own notes, whether either of those statements reawakens any recollection on your part of what the reference was that was being made?

A. The reference to "prorating over entire market" meant that this analysis of freight rates was based upon a proportion of the total consuming market on the assumption that we would supply a prorata share of every outlet.

We had no other basis on which to analyze the freight [fol. 2288] cost to the destinations. So we took a market and simply prorated our production against the total and said, If we spread our production uniformly across the market, this is the way the freight analysis would shape up.

Q. Directing your attention to the second page and the underlined phrase, underlined by counsel for the Government, "one-sided need", can you state what the meaning of that term is?

A. "One-sidedness". My writing is very poor.

This, as I recall, refers to a discussion about the joint plant being put at Chattanooga, for which this tabulation shows freight rates in relation to Calvert City. And the one-sidedness came about from the fact that under such a decision the facility, the physical assets, and the operating control would also be at the location, namely, an Olin facility, and Olin would also be in complete charge of the marketing operation. And it was felt that this represented a completely one-sided pattern where a party would put in fifty per cent of the capital and yet everything would end up in the complete control of the other partner. This would be the same situation as if the plant went up in Calvert City and Pennsalt was doing all the marketing and Olin was just an investment partner.

Q. Did the discussion which took place on February 4 [fol. 2289] with respect to one-sidedness take into account Pennsalt's complete operation of the plant at Chattanooga, or was there something else contemplated?

A. No; this would be an operating impracticality to put the plant at our plant site and have it operated by them. So this was not considered as being a practical solution at all.

Q. Is it correct then to say that the alternative that faced you in the problem of one-sidedness was that of Olin operating and Pennsalt selling in one locality or Pennsalt operating and Olin selling in another locality? Is that an alternative that was discussed or that was frowned upon?

A. I don't recollect that this alternate was even discussed.

Q. In other words, at no time was the possibility of Pennsalt doing the selling discussed? This did not enter any discussions?

A. I don't think it was.

* * * * * * *

[fol. 2290] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 409

New York, N.Y.

EXCERPTS FROM DEPOSITION OF RUSSELL HOPKINSON TAKEN ON SEPTEMBER 14, 1961

* * * * * * *

[fol. 2291] RUSSELL HOPKINSON, being first duly sworn by the notary public, testified as follows:

Direct examination.

By Mr. Freed:

Q. Sir, would you state your name and address for the record, please?

A. Russell Hopkinson; I live at 131 East 69th Street.

Q. And Mr. Hopkinson, what is your position with the defendant Olin Mathieson?

A. I am vice president, senior adviser.

Q. And how long have you held that position?

A. Since September 1st of 1960.

Q. Prior to that time, what was your position with Olin?

A. I was vice president for commercial development.

Q. And that title ran starting at what date?

A. June 6, 1958.

Q. If you have the sequence of your positions with the company, could you just give us a quick summary of them running backwards in time, just mentioning the date at which each prior position with the company commenced?

[fol. 2292] A. Before that I was executive vice president, and that title—I received that title on January 18, 1957.

Prior to that, I was vice president for development. That title was given to me on September 9, 1954.

Prior to that, I was corporate vice president for research and development. I received that title on January 15, 1954.

Prior to that, I was still corporate vice president for commercial development. That title I received on May 1, 1953.

Prior to that, I was vice president for commercial development from March 1, 1953.

Prior to that, I was corporate vice president for the Drugs and Pharmaceuticals Division from October 1, 1952.

Prior to that, I was corporate vice president and general manager of the Petrochemicals Division, which title I received on June 1, 1952.

Q. If I may interrupt you, sir——

A. There is one more.

Q. Okay, I was not interrupt you.

[fol. 2293] A. I was administrative vice present for the Mathieson Hydrocarbon Chemical Corporation, a subsidiary corporation, and that title I received on January 1, 1950.

Q. Prior to 1950, where were you employed?

A. I was self-employed before that for two years as a consulting chemical engineer.

Q. And prior to your self-employment?

A. I was in charge of commercial development for the United States Rubber Company.

Mr. Freed: Off the record.

(Discussion off the record.)

Q. Did I correctly understand you to say, sir, that at two different points, first beginning in May of '53 and then beginning in June, 1958, you held the same title of corporate vice president of commercial development?

A. I believe that's correct.

Q. In your present capacity as vice president, senior adviser, what is the scope of your responsibilities?

A. I am supposed to advise and consult with the president and his staff relating to operations.

Q. In the position that you occupied in the preceding two years, what were your responsibiilities?

[fol. 2294] A. I was assisting the divisions in developing new products, processes, and raw materials sources.

Q. Would it be correct to say, sir, that in the present structure of Olin, your principal specialty is chemicals?

A. Yes, I think so.

Q. Can you tell us, Mr. Hopkinson, the names of the committees or groups within the Olin corporate structure, management, of which you are a member?

A. I am only a member of one committee.

Correction: I think I am a member of two committees. One is the—what we refer to as the CAR committee, which passes on capital appropriation requests. Then I am also a member of a newly appointed and as yet inactive committee which reviews raw materials sources.

Q. How long have you been a member of the capital appropriations committee?

A. Since its formation. I don't remember when that was.

Q. Approximately how far back does it go?

A. About two years ago.

Q. When was the first time that a sodium chlorate project came to the attention of the capital appropriations [fol. 2295] committee?

A. Very shortly after its formation. I would guess that it is somewhere about in the first three months of 1960.

Q. Is it the function of the capital appropriations committee to pass on the Industrial Chemicals Division's Whither Reports?

A. No.

Q. Can you tell us where in the corporate structure, above the Chemicals Division level, Whither Reports are considered?

A. They are considered by the corporate staff committee, of which I am not a member.

Q. Are the decisions or actions of the corporate staff committee transmitted to you? Do you perform any function with reference to the decision-making process of that committee?

A. Occasionally.

Q. Is your role with reference to them only an advisory one?

A. Yes.

Q. And if recommendations or projects survive the corporate staff committee's deliberations, will they come to your attention at the same time that they go to Mr. Os- [fol. 2296] borne?

A. Not necessarily.

Q. Then with reference to any actions of the corporate

staff committee, you would have to know what the specific project was in order to be able to say whether you played any role with respect to it; is that correct, sir?

A. That's right.

Q. Have you at any time been a member of the corporate staff committee?

A. Yes.

Q. Could you tell us the years of your membership there?

A. I don't remember when my membership was discontinued. The corporate staff committee was formed when Mr. Osborne became president.

Q. Can you tell us when that was, sir?

A. I don't remember.

Q. Can you give us an approximation? Was it 1950, 1958?

A. I believe it was during 1958.

Q. Were you a member at the outset of that committee's function?

A. Yes.

[fol. 2297] Q. Approximately how long did your membership on the corporate staff committee continue?

A. Until about the middle of 1960.

Q. During your tenure of office on that committee, did the Whither Reports of 1958, 1959 and 1960 come before the committee for evaluation?

A. Yes, they did.

Q. With reference to budgets prepared by the divisions of Olin, can you tell us how they are processed in the corporate structure above the divisional level?

A. Currently?

Q. First, directing your attention to the time beginning 1958.

A. Did you say prior to the time before '58?

Q. Commencing in 1958, would you bring your answer up to the present time?

A. Budgets were brought to the attention of the corporate staff, recommendations were made by the staff and further review of the budgets were made by the comptroller.

Q. That was in 1958, sir?

A. Yes. I have no knowledge of how it is done now.

[fol. 2298] Q. During the time you were a member of the corporate staff committee, who was the comptroller?

A. Mr. Otterstrom, the present comptroller.

Q. What is Mr. Otterstrom's first name?

A. William.

Q. Would you describe for us, sir, the first time that you performed any work or took any action, either with Olin or prior to coming with Olin, on any matter that related to sodium chlorate?

A. I don't remember the exact date, but it must have been subsequent to May, 1953, at which time I reviewed, during the next few years, many of the projects that the company was engaged in. Sodium chlorate was among these.

Q. Without pinpointing any specific date, can you tell us your earliest recollection of the company's interest or activity in the sodium chlorate field?

A. Yes. I found that we had developed a process for bleaching pulp, using a raw material sodium chlorate, and that we were not manufacturing sodium chlorate, but purchased it from others, and I raised the natural inquiry of why we didn't make our own sodium chlorate.

Q. I would like to show you, Mr. Hopkinson, a brief [fol. 2299] memorandum dated July 5, 1956, which in a previous deposition was marked Plaintiff's Stein Exhibit 5, and ask you whether that memorandum enables you to pinpoint the time in which you first became aware of or took an active interest in Olin's sodium chlorate activities, or potentialities.

A. Yes, this may be the first written record of my interest in it.

Q. I will show you, sir, Stein Exhibits 6, 7 and 8, which are respectively dated July 10, July 13 and July 18, 1956, which appear to form part of one transaction or one period of interest involving you, and ask you whether, after refreshing your recollection on the basis of those documents, you can tell us what triggered your interest in sodium chlorate during this period.

A. We, as I say, had developed a process for using chlorine dioxide for the bleaching of pulp, and that process required sodium chlorate as a raw material, and I felt that if others could manufacture sodium chlorate profitably, so could we.

The fact that Hooker Chemical purchased our source of supply, Oldbury Electrochemical, raised some doubts naturally whether this source would still be available [fol. 2300] to us.

A further reason for our interest in it is that sodium chlorate consumes chlorine in its manufacture, and we are manufacturers of chlorine, naturally looking for any manner in which we could upgrade the material.

Q. Was it Hooker's acquisition of Oldbury that awakened your interest or initiated your interest in sodium chlorate, or was there some other specific event or individual who first brought sodium chlorate's potentialities to your attention?

A. No, it was my responsibility for looking into each of our products, and in so doing, as I said before, this seemed a natural product for us to make.

Q. I believe, sir, you mentioned just a few minutes ago your feeling at this time, in 1956, that if others could manufacture sodium chlorate, so could Olin. Have you at any time since 1956 had occasion to change th feeling?

A. Yes. The result of these inquiries to our own people produced evidence that we did not have a process for making sodium chlorate ourselves and the economics of the process, using the information we had, indicated that it [fol. 2301] would not have a sufficiently profitable picture to warrant our going into it.

Q. Can you recall when it was that you reached that conclusion.

A. I can only recall that the result of my very first inquiry was discouraging.

Q. In other words, the conclusion which you stated previously based on the lack of a process and the absence of a sufficiently promising picture, was a conclusion that you reached shortly after your inquiry commenced in 1956; is that correct, sir?

A. That's right.

. . . . . .

[fol. 2302] Q. Directing your attention, sir, to the last paragraph of this exhibit, there is a reference to assistance that you could offer to Mr. Logan. Can you telf us, first

of all, who the "we" referred to in the last paragraph included, if it included anyone other than yourself?

A. This memorandum was written while I was vice president for development and my responsibilities were in evaluation of new products and processes and commercial activities. For this purpose I had a staff, and on my staff was Dr. Stein, who had a very wide knowledge of the chlo- [fol. 2303] rates and inorganic chemistry in general.

I also had economists who were used to making up economic evaluations, and with the aid of this team I thought that I could assist Mr. Logan in deciding whether or not this would be, as it appeared to be, a good venture to go into.

. . . . . .

[fol. 2304] Q. Well, to state it more simply, what did Olin, following this brief and rapid exchange of memoranda—what activities did the company undertake?

A. Well, this is speaking from memory. I believe that I studied the economics of the manufacture of sodium chlorate based on the information which we had in our company and came to two conclusions. First, that we did not have a process that was completed and ready to work; and, second, that the information we were able to gather did not show that the venture would be sufficiently attractive to go into it, and that it would not be sufficiently attractive to warrant doing the necessary development work to come up with a finished process.

Q. Can you recall approximately when that conclusion was reached?

A. I believe it was very shortly after this series of memoranda, and I know that the subject came up subsequently. In our research department, I believe that Dr. Wojcik himself thought that we could develop such a project, but I pointed out what I just answered here to him.

Q. Then the conclusions that you have stated were reached in the latter part of 1956; would that be correct, [fol. 2305] sir?

A. I believe so.

Q. Now, can you tell us the chronology of events which

led to Olin's renewed interest in and further studies of the potentialities of sodium chlorate as an Olin operation?

A. I can tell you only of what came to my knowledge, and the first information I had that indicated to me we might review the matter again was when I was informed that Pennsalt had a process which was a profitable one and that we had an opportunity of joining forces with them in the manufacture and sale of sodium chlorate.

Q. When did that come to your attention, sir?

A. Well, I think that was early in 1960.

Q. Between the end of 1956, when you first reached your conclusions respecting the entry by Olin in the sodium chlorate, and the early part of 1960, did you have anything to do with the course of events within the Olin organization that involved sodium chlorate?

A. No, I didn't.

Q. When did Dr. Wojcik's research and development work in sodium chlorate, following your 1956 evaluation, come to your attention? Did you know that he was continuing that work in, say, 1957?

[fol. 2306] A. Yes, I knew that work was going on.

Q. And was that work going on at your direction, or with your approval?

A. It was not.

Q. Was it going on contrary to your recommendations?

A. Yes.

Q. To whom did you make recommendations regarding sodium chlorate and when? And we are now referring to the 1956 period.

A. I don't remember to whom I gave these recommendations that I have just stated here, but it would have been to the manager of the Industrial Chemical Division.

Q. Can you recall the response or reaction by the manager of the Industrial Chemical Division to your recommendation?

A. No.

Q. Do you know, sir, why the Chemicals Division proceeded with sodium chlorate research and development in spite of your recommendations?

A. No.

Q. Did you have any conversations with any one in the company about the sodium chlorate development work

[fol. 2307] which proceeded between 1956 and 1960, prior to the awakening of your interest in the Pennsalt potentialities in 1960?

A. I can't recall any such time.

Q. Then would it be correct to conclude from your testimony that between 1956 and 1960 any activities in which Olin engaged that involved sodium chlorate were without your approval and without your participation and without any intervening interest on your part up through 1960?

A. I don't think it would be right to say it was entirely without my approval. You spoke about the research work. I felt that the whole project was not sufficiently profitable to warrant putting the research work on this subject, but I had no responsibility for operating the research, so that naturally I wouldn't get involved in such a discussion as to whether or not research would continue on it.

. . . . . .

[fol. 2308] Q. Mr. Hopkinson, the Whither Report of 1958, which bears the date of April 4, 1958, and is entitled "Industrial Chemicals Division—Division of Objectives, discusses the subject of new products, among which chlorates and perchlorates are mentioned in Section 4. Directing your attention, sir, to this reference to sodium chlo-
[fol. 2309] rate in 1958, can you tell us whether this particular portion of the Whither Report came to your personal attention in 1958 in the course of your duties with the corporate staff committee?

A. Yes, it did.

Q. Can you recall at the time this recommendation of the Chemicals Division came to your attention in 1958 the discussion which took place in the corporate staff committee with respect to chlorates and perchlorates?

A. Yes.

Q. And can you tell us what that discussion was?

A. I can't recall specifically, but I can't remember any improvement in the economic picture which showed that the manufacture of the chlorates was economically feasible until, as I pointed out before, the Pennsalt picture came to my attention.

. . . . . .

[fol. 2310] (Document above referred to marked Plaintiff's (Hopkinson) Exhibit 1 for identification.)

Q. Directing your attention, Mr. Hopkinson to the three basic criteria in developing products new to Olin Mathieson, as stated in the opening paragraph, Section 4, can you tell us which of these criteria related to chlorates and perchlorates?

A. All three of them.

. . . . . .

[fol. 2311] Q. Can you recall, sir, whether the corporate staff committee, of which you were a member at the time this report came to your attention, took any action regard-[fol. 2312] ing the discussion of chlorates and perchlorates, referred to in Section 4?

A. I think it took no action.

Q. What was the significance in the flow of organizational work of no action being taken by the corporate staff committee with respect to an objective of this kind in the Whither Report?

A. There was really not much significance. The Whither report was prepared merely to show the staff what the forward thinking was of the divisions, and, as you can see by this Whither Report, it involves an enormous number of different projects.

If one of them was outstandingly good, the corporate staff might evidence its approval. If there was some, on the contrary, strong reason for not approving it, they would also comment.

Q. In the absence of any comment by the corporate staff committee on a Whither Report section, was the division, the Chemicals Division, free to proceed along the route charted in its Whither Report?

A. Yes.

Q. At the time of this particular Whither Report, did you personally take any action to communicate your own feelings about sodium chlorate as an Olin product to the [fol. 2313] Chemicals Division or anyone else in management?

A. Everytime the subject came up, I took the same attitude, which was this is a natural product for us to get into;

it is unfortunate that we don't have a profitable process to make it by, and that we should continue to search for such a process, but not spend money on it.

Q. In what way, sir, could Olin proceed to obstain a sodium chlorate process without paying money for it, either through research and development or through purchase? In other words, can you explain to us what you meant by acquisition without paying for it?

A. That the search for such should not be costly to the corporation.

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[fol. 2314] Q. I would like next, Mr. Hopkinson, to direct your attention to the Whither Report dated April 10, 1959. Extracts from this report have previously been identified as Plaintiff's C. L. Williamson Exhibit 2.

Directing your attention, sir, to page 18 of the 1959 Whither Report, I wonder if you can tell us of the discus-
[fol. 2315] sion which took place in the corporate staff committee respecting the facts and recommendations on that page respecting sodium chlorate.

A. Now you asked—may I have the question repeated?

Mr. Freed: Repeat the question, please.
(Question read.)

A. I remember my comment at this point was that I had yet to see a process for producing sodium chlorate which yielded an 11 per cent return on the investment and would be interested in seeing such an economic evaluation.

Q. Do you recall asking for one at the time this report was submitted?

A. No, but I believe that Williamson, or someone, stated that they would produce such a report.

Q. Do you recall whether that was done?

A. No, I don't recall.

Q. Did the corporate staff committee take any action with respect to the recommendations contained on the page?

A. I don't believe so.

Q. And the effect of taking no action was the same as

you previously specified with reference to the 1958 Whither Report?

A. Yes. The division then has no authorization to do [fol. 2316] anything further than investigate these new projects, including the sodium chlorate. No moneys can be spent on them until they have prepared a proper capital appropriation request, so that there is really no need for the corporate staff to interfere with the division, if they make assertions that investments look profitable and that they have the sales capabilities on any given product.

* * * * * * *

[fol. 2317] Q. Can you tell us, sir, what the state of your knowledge was at the time this Whither Report was submitted respecting an independent Olin sodium chlorate plant versus the possibility of a joint venture in sodium chlorate?

A. I knew of nothing concerning a joint venture until some time in 1960.

Q. Directing your attention, sir, to page 45 of the 1959 Whither Report, which contains Exhibit 24 entitled "Summary of Investment Results Sodium Chlorate," can you recall, sir, any discussion of the information divulged in this exhibit?

"A. Yes, I believe that we discussed it, and we concluded that it would appear to be a satisfactory project if those results could actually be achieved. However, I do not believe that we gave those figures much consideration because it was only a Whither Report, not based on actual studies, and was not calling for action on our part."

Q. In other words, if the facts shown in this exhibit were borne out by actual studies and an actual capital appropriation request, it would have been sufficient to satisfy you, but you did not know whether the facts stated in this report were attainable; is that correct?

A. That is correct.

Q. Mr. Hopkinson, pages 47, 50 and 51 of the Whither Report, which you have in your hand, contain a notation in the upper left-hand corner of each page indicating a [fol. 2318] revision in October, 1959, and you will notice,

sir, that each of those revised pages lists sodium chlorate as a project located at Chattanooga.

A. Yes, sir.

Q. The prior pages of the report to which your referred in your earlier testimony had referred to a sodium chlorate project at McIntosh, and I wonder if you can tell us of any facts which led to the revision of this Whither Report in respect to the location of the sodium chlorate facility discussed by the Whither Report?

A. Yes, the revision—the study which led to the revision, indicated that Chattanooga was a better location from a freight standpoint.

Q. Do you recall, sir, why consideration of a change in location was undertaken?

A. No, I don't, excepting that the divisions were projecting the possibility of a chlorine plant at Chattanooga.

Q. And was the sodium chlorate plant related to the consideration of a chlorine-caustic soda plant?

A. Oh, yes, because it consumes chlorine in the manufacture of sodium chlorate.

Q. As you now recall, was consideration of an Olin so-
[fol. 2319] dium chlorate plant at all times related to consideration of an Olin chlorine-caustic soda plant?

A. Up to this time, yes.

. . . . . .

Q. Do you recall whether there was a subsequent meeting of the corporate staff committee to consider the revisions set forth on pages 47, 50 and 51?

A. No, I can't recall now.

Q. Was such a meeting held, to your recollection?

A. No, not that I know of.

. . . . . .

[fol. 2320] Q. Apart from the factor of freight equalization to which you referred, were there any other significant differences that you can now recall between your attitude towards the sodium chlorate project, as originally proposed at McIntosh and your reaction to the sodium chlorate facility to be located at Chattanooga?

A. No.

Q. Can you tell us, Mr. Hopkinson, what happened to the sodium chlorate project at Chattanooga following the October, 1959, revision of the Whither Report?

[fol. 2321] A. Well, I think the next thing that came to my attention was the possibility of a joint venture with Pennsalt.

Q. Do you recall whether, at the time it first came to your attention, the possibility of the sodium chlorate facility at Chattanooga as a wholly independent Olin project had been abandoned by decision of the corporate staff committee?

A. Well, the corporate staff committee never abandons any project. It is the division that either—that abandons it or takes it up.

Q. Can you——

A. I can say that my reaction to the possibility of a sodium chlorate plant at Chattanooga is that I highly questioned whether we had the competence to put a sodium chlorate plant and produce chlorate at the rates of return that are indicated here.

Q. In the latter part of 1959, what were your doubts based upon?

A. On the information that we had within the corporation. We had never produced sodium chlorate in any quantities at all. Therefore, we were not experienced sodium chlorate producers.

Q. Were you closely familiar, sir, with the state of re-

[fol. 2322] search and development work by Olin in the sodium chlorate field in the latter part of 1959?

A. Not closely familiar with it, but the information that came to my attention on the subject did not indicate that we had a full process.

Q. What was the information that was available to you at that time?

A. Very simply this: that we had never produced sodium chlorate in the quantity required, and the mere fact that it has been produced in the laboratory is not proof that you can produce it in a plant at a—profitably.

Q. With reference to the production of any chemical, or any product new to Olin, how could Olin's capability of producing the product outside of the laboratory come to

your attention and be a fact without approval by the corporate staff?

The Witness: Can I have that question reread, please?

(Question read.)

Q. In other words, sir——

A. I don't understand the last part of the question. I [fol. 2323] understand the first part of it. I can answer the first part by saying that the way I would know that we had such a process would be by seeing pilot plant results.

Q. And——

A. And full evaluation on a large scale.

Q. Did pilot plant results and pilot plant operation require any action by the corporate staff?

A. No.

Q. Could this be achieved completely on a divisional level?

A. Yes.

Q. Were your aware, sir, in the latter part of 1959, of the consideration which had been given in the Industrial Chemicals Division to a pilot plant operation for sodium chlorate?

A. No.

Q. Can you recall any inquiry being made at the time the Pennsalt joint venture possibility first came to your attention with reference to Olin's capability to undertake a pilot plant sodium chlorate operation of its own?

A. I first knew of the possibility of a joint operation with Pennsalt in the first three months of 1960. This was [fol. 2324] the first time that I was at all interested in the possibility of Olin having a production facility for sodium chlorate because we would be relying on information and knowledge of others that were in the sodium chlorate production business.

Q. At the time you took the Pennsalt matter under consideration in 1960, did you make any inquiries respecting Olin's ability on its own to conduct a pilot plant sodium chlorate operation?

A. I didn't need to make any inquiries. Olin could have conducted pilot plant operations, but pilot plant operations are the most expensive part of research and everything,

to my knowledge to date, indicated that this project was so low in profitability that it did not warrant our putting the money into a pilot plant to perfect the process. I still feel that way about it.

* * * * * * *

[fol. 2325] Q. Do you know, sir, of any efforts made by Olin to secure sodium chlorate production technology on a purchase basis?

A. Yes. We had a team investigate sodium chlorate production knowledge I think just prior to the time we had these discussions with Pennsalt. Based on the information this team came back with, they believed that the Pennsalt process was the best.

Q. Can you recall the identity of any members of that team?

A. I believe Dr. Gardiner was one of the members. I can't remember the others.

Q. Do you recall whether that technical survey team was set up in connection with the negotiations with Pennsalt?

A. I don't know.

Q. Do you know, sir, whether the possibility of Olin's purchase of technology had been explored prior to the time that a joint venture had been considered?

A. I don't know.

Q. Did any information come to your attention prior to the first contact with Pennsalt in 1960 regarding Olin's exploratory talks with Vickers-Krebs?

A. I remember that Vickers-Krebs was one of the com-
[fol. 2326] panies that we consulted on sodium chlorate.

Q. I believe, sir, that the records will show that Olin did consult with Vickers-Krebs and a number of other companies in connection with the joint Pennsalt-Olin technical-survey team in 1960.

My question is directed to the period prior to the creation of that joint Pennsalt-Olin team, and I wonder if you can tell us whether you were aware of Olin's own negotiations with Vickers-Krebs for the purchase of sodium chlorate production technology.

A. No, I was not.

Q. Did you ever hear of the turnkey proposal which had been discussed by Olin with Vickers-Krebs under the terms

of which consideration was given to having Vickers-Krebs construct a complete sodium chlorate plant for Olin?

A. No.

Q. At the time you first gave consideration to the Pennsalt transaction, did you consider the purchase by Olin of sodium chlorate production technology from Pennsalt or from anyone else for the purposes of completely independent Olin project as an alternative to a joint venture?

[fol. 2327] A. No, I didn't.

Q. In terms of the objectives which Olin was seeking in acquiring sufficient technology and favorable economics for a sodium chlorate project, can you tell us why no consideration was given as far as you know to the acquisition of a sodium chlorate plant or a technology as an alternative to a Pennsalt joint venture?

A. I don't know why, and I don't know that that was the case.

Q. In terms of our own consideration——

A. Yes.

Q. —of the matter, sir, can you tell us why, if it is a fact, you did not given consideration to that alternative, namely, an independent effort by Olin to enter the sodium chlorate business with the purchase of technology rather than a joint venture with Pennsalt?

A. No, I don't know why that wasn't done.

Q. Could you tell us now, sir, what objections, if any, there might have been to proceeding in the direction of an acquisition of sodium chlorate technology route rather than the joint venture route which you did embark on?

[fol. 2328] A. Well, even after you have acquired technology, or technical information, you have the problem of erecting the plant and the problems that come with starting up a plant, and unless someone else who has full knowledge of the subject does it for you, you have other expenses and problems to meet that are certainly deterrent.

Q. Is the problem which you have just described a problem which arises each time Olin considers embarking on a new product or a new project?

A. Yes.

Q. Could you describe for us the difference between your consideration of a joint venture in the case of sodium chlorate and of an independent effort which Olin makes or has

made in the past in embarking on other new products or new projects?

A. Well, if your rate of return appears to be adequate, by which I mean somewhere around 15 per cent on investment, you are warranted in spending money in perfecting or developing a process and accepting the problems that come with plant start-up difficulties, possibly changes of plant that might have to be done, but with a venture that even the most optimistic figure that we have seen here to date amounts to 11 per cent, you are not warranted [fol. 2329] in going to the trouble of starting up a new plant and accepting all the problems that come with it.

Q. Does the 15 per cent figure, to which you referred, sir, represent any corporate yardstick or corporate policy which represents a dividing line between Olin's entry on its own into a new area as opposed to Olin's entry in conjunction with another company?

A. It is a yardstick that I recommended to the capital appropriations request committee. I recommended that they have three different criteria, and in each case demanding a different rate of return, depending on, one, whether we are sellers of a product and have an assured market; two, whether we have the technology and production capability—in other words, whether we have already produced the product—and, three, whether we have neither. And the rates of return that I suggested ran from 10 per cent and 13 per cent and 15 per cent.

Q. Do I correctly understand you to mean, sir, that if the first criteria of sellers of an assured market is met, 10 per cent would be the policy objective?

A. Well, if we have the sales capabilities and the tech- [fol. 2330] nical know-how and have produced the product, the lowest one of 10 per cent would be ample. In this case, you see, sodium chlorate does not meet that criterion.

Q. And under what circumstances do the 13 and the 15 per cent figures that you mentioned come into operation under your recommended policy?

A. Well, the 15 per cent, if it is a brand new product to the company in which we have neither sales capabilities, or production know-how.

The 13 per cent, where we had the sales capabilities and had to acquire a production know-how.

Q. When were these recommendations with respect to investment policy made by you, sir?

A. About a year ago.

Q. Would that be in the middle of 1960?

A. Yes, it would be about the end—the last part of 1960. I would say the third quarter of 1960.

Q. Was each criteria adopted as the corporate policy?

A. I believe so, with some leeway in each case.

Q. Prior to adoption of this investment policy, were [fol. 2331] there any criteria applicable, particularly at the time of your consideration of the Penn-Olin project?

A. No, there was no fixed criterion.

Q. Was it the 15 per cent yardstick to which you have just referred that you yourself adopted in considering the Penn-Olin rather than an Olin venture in the early part of 1960?

A. No, I would be applying something like the 13 per cent one to it, because in my opinion we had the sales capability, but not the technical capability.

Q. So it was the absence of a return, on the basis of any information known to you, equal to 13 per cent which excluded consideration of sodium chlorate as a wholly Olin project in the early part of 1960?

A. That's right.

• • • • • • •

[fols. 2332-2333] Q. Mr. Hopkinson, turning back to the question of Olin's investment policy in the beginning of 1960, at the time the Penn-Olin venture came up for consideration and was then the subject of an agreement in February, can you tell us what Olin's return-on-investment policy was as of January, February, 1960?

A. Well, I think it was very much like the one that I finally recommended, only it was unofficial. That is, when we found we had all the elements in our knowledge for a new venture, we would accept a lower rate of return, but the lowest rate of return that we ever wanted to accept was 10 per cent.

• • • • • • •

[fol. 2334] Q. Was there any informal understanding among the members of top management with respect to the criteria under which Olin would consider a joint venture in a product?

A. I can only speak for myself.

Q. And you are aware of no policy with respect to that matter?

A. I have a very—I have a policy that I believe in.

Q. And is the policy to which you refer one that you had at the time you were considering the Penn-Olin venture?

A. Yes.

* * * * * * *

[fol. 2335] Q. Are you aware, sir, of any specific comparison that was made at the end of 1959 or the early part of 1960 with respect to return on investment with acquired technology compared with return on investment with the Pennsalt venture?

A. No.

* * * * * * *

[fol. 2336] Q. Frequent reference has been made today, sir, to Olin's return-on-investment policy, but I don't believe there has been any discussion of the manner in which particular percentages are calculated. Could you tell us whether the percentage return on investment figures, which you have been discussing today, refer to—or let me rephrase the question. Would you describe for us the manner in which you calculate return on investment?

A. Well, it is a very complicated method, but to simplify it, you take the—or we take the net profit after taxes and apply that to the total capital investment, including working capital, to obtain a rate of return on gross capital investment.

Q. Does the total gross capital investment figure include both Olin dollars as well as loans to Olin?

A. Yes. It includes every dollar necessary to pay for the facility, plus the dollars necessary to carry your inventory.

Q. And in terms of your policy, is there any distinction, or is there any significance to the distinction between a project in which all of the funds come from the company's

[fol. 2337] treasury and a situation in which part of the funds come from Olin's treasury and part are borrowed?

Mr. Barnum: Excuse me. Significance in so far as only the rate of return is concerned? Is that the purport of the question?

Mr. Freed: Yes, sir.

Mr. Barnum: Thank you.

A. There is no difference.

Q. Is there any distinction in the overall capital investment policy between a situation where you proceed completely with your own funds and a situation in which you borrow some of the funds?

A. No.

Q. Is there any policy with respect to the numbers of years for pay-out?

A. There is no fixed policy on that.

Q. Is there any general bench mark that you use in respect to the time within which Olin's investment would be repayed?

A. No general figure.

Q. Is there any criterion in this respect that would govern ventures of the type represented by a sodium chlorate plant?

[fol. 2338] A. No, I don't think so.

Q. Is there any distinction, sir, in your investment policy between situations in which the capital for a project comes entirely from Olin funds or loans and situations in which some of the capital comes from Olin and some is put up by a partner?

A. No, there should be none.

Q. When referring to after taxes in the description you gave of the investment policy, is 52 per cent always used as the tax rate?

A. Yes.

Mr. Freed: I would like the reporter to mark as Plaintiff's Hopkinson Exhibit 2 a memorandum dated February 9, 1960, to Mr. Hopkinson from Mr. Logan, to which is attached a memorandum dated February 3, 1960, signed by Mr. Williamson.

(Memorandum and attached memorandum above referred to marked Plaintiff's (Hopkinson) Exhibit 2 for identification.)

Q. Addressing your attention to Plaintiff's Hopkinson Exhibit 2, can you tell us, sir, from your examination of this document, whether you can now pinpoint the first time that the Penn-Olin venture was brought to your attention? [fol. 2339] A. Yes, this is about the time in which it was called to my attention. It may have been a few weeks earlier to this, but it was approximately at this time.

Q. Do you recall whether it was Mr. Logan who first brought the Pennsalt negotiations to your attention?

A. I believe it was.

Q. Do you recall having any discussions with Mr. Block prior to this time about the Penn-Olin venture?

A. Well, at about this time I also had discussions with Mr. Block.

Q. Can you recall Mr. Block telling you anything about the background of the Pennsalt-Olin negotiations, how they had arisen and what had happened up to the point that he spoke to you?

A. No, I don't remember.

Q. And could you answer the same question with reference to anything Mr. Logan may have told you prior to this date about the background?

A. That's right; I don't think anybody told me how these negotiations originated.

Q. And at the time when the matter first came to your [fol. 2340] attention, had the name Penn-Olin already been selected?

A. Yes.

Mr. Freed: Off the record.

(Discussion off the record.)

Q. With reference to Mr. Williamson's attachment to this exhibit, can you recall what the considerations were in choosing between Calvert City and Chattanooga as the site of a Penn-Olin plant?

A. Both sites, as I remember them, were very satisfactory. The modest amount of freight absorption indicating one slightly preferred to the other might easily be washed

out by a change in customers. That is, these freight rates are made to what you hope to sell to prospective customers, and a change—for example, if you lost a customer that is far away and you gain one that is nearby, it could easily change these freight figures.

Q. In the absence of any selectivity among customers, is your recollection in accord with Mr. Williamson's method with respect to the freight advantages being with Chattanooga, as indicated in the second paragraph of this document?

The Witness: Can I have the question repeated?

[fol. 2341] (Question read.)

A. Yes.

Q. Can you recall the specific reasons which led to the choice of Calvert City over Chattanooga?

A. The fact that Pennsalt had a chlorine plant at Calvert City and that they were offering to combine their know-how for the production of sodium chlorate and the availability of land, as I remember it, would have offset, as I remember, the freight advantage for Chattanooga.

Q. Do you recall the status of consideration being given at this time to a chlorine-caustic plant for Olin at Chattanooga?

A. Yes, I believe it was being considered.

Q. And was that plant ultimately approved and constructed?

A. I believe it is being constructed, but I am not sure.

Q. Can you recall whether land was available in connection with the Olin chlorine-caustic plant at Chattanooga on which a sodium chlorate facility could be constructed?

A. No, I don't recall.

[fol. 2342] Q. Do you recall whether consideration was given to locating the Penn-Olin facility at Chattanooga on the property where the chlorine plant was to be built?

A. I do not believe that the chlorine plant at Chattanooga was firm and that we were definitely going ahead with it at this time. Again, I am not sure.

Q. Do you recall, sir, any discussion respecting the size, the productive capacity of the Penn-Olin facility?

A. The only memory I have of that is that in Mr. Wil-

liamson's first memorandum the plant of 10,000 tons capacity showed only a nominal return; it was not large enough; and that the 25,000-ton plant was the first one that indicated a return—and at that time it was still unsatisfactory in my own opinion.

Q. In the next-to-the-last paragraph of Mr. Williamson's memorandum, the second page of Plaintiff's Hopkinson Exhibit 2, the statement is made:

> "Obviously, if we were to equate pay-out against equity capital, we would show a very very favorable picture."

[fol. 2343] Was that a basis on which Olin's calculations were made, namely, equating pay-out against equity capital?

A. No, it was not and is not. It should not be. This was an attempt frequently made by a division coming up with an unsatisfactory project to try to make it look like a good project. They become experts in the banking field and want to borrow large portions of money, assuming that you are not obligated for the repayment of that debt and think that you have only the difference in the way of equity capital, upon which you must earn the return which, of course, is not the case.

Q. Is there any difference in the answer which you have just given between loans obtained by Olin which are guaranteed by Olin and those which are obtained on an unguaranteed basis?

A. No.

Q. In the financing negotiations which Olin undertook in the early stages of the Penn-Olin venture, do you recall any mention being made of an effort to secure a loan on an unguaranteed basis?

A. No.

Q. Were you aware that Pennsalt considered an unguaranteed loan to be an important requisite of the financing [fol. 2344] of the venture?

A. No.

Mr. Barnum: Off the record, please.

(Discussion off the record.)

Q. In Olin's interpretation and application of its return-on-investment policy, will the return on investments be identical in a situation where Olin is complete owner of the plant and receives all of the profits and a situation where Olin is 50 per cent owner of the plant and receives 50 per cent of the profits.

A. There is no distinction. Our proportion of the interest in the joint venture would be proportionate to our return.

Q. Mr. Hopkinson, I would like to show you a photostat of two pages of handwritten notes which were marked in Baltimore with the stamp "Olin D-134 HOPKINSON," and ask you, sir, whether that is a copy of notes written in your own hand.

A. That's right.

Mr. Freed: Then I would like the reporter to mark these notes as Plaintiff's Hopkinson Exhibit 3.

(Copy of handwritten notes above referred to marked Plaintiff's (Hopkinson) Exhibit 3 for identification.)

[fol. 2345] Q. Mr. Hopkinson, from your examination of these notes, were they made on February 10, 1960, as far as you can recall?

A. I see a notation up at the date. It is somebody's handwriting, not mine: "2/10/60."

Q. Do you have any recollection when these notes were made?

A. Yes, I remember that I did this to take out of the calculations that were supplied to me the interest and other extraneous matter that had been injected by the division in trying to show the pay-outs for these plants.

Q. What do you mean by "taking out the interest"?

A. Well, as I remember it, when these calculations first came to us, they had assumed that a portion of the funds would be borrowed. They also had very elaborate calculations by years, as I remember, and to simplify the problem I worked these out on a completed plant operating at full capacity, using the figures that had been supplied to me by the division on the sales and the cost of the plant, the production costs.

[fol. 2346] Q. What was the effect of taking these factors out?

A. Both projects would appear unsatisfactory. The 10,000-ton-per-year plant is obviously only a nominal return. The 25,000-ton-a-year plant is a low return by any standards.

Q. And the low return to which you are referring is the 8.3 figure in the lower right-hand corner?

A. That is correct.

Q. After making these calculations, what action, if any, did you take with respect to the Pennsalt-Olin meeting which was then scheduled for February 11, 1960?

A. I am sure I commented that the yields were unsatisfactory and that we would have to have more accurate figures or better figures before the plant would be—before the venture would be a satisfactory undertaking.

* * * * * * *

[fol. 2347] Mr. Freed: I would like the reporter to mark as Plaintiff's Hopkinson Exhibit 4 a memorandum of three pages from Mr. L. S. Howe to Mr. Hopkinson dated February 18, 1960.

(Three-page memorandum above referred to marked Plaintiff's (Hopkinson) Exhibit 4 for identification.)

Q. Mr. Hopkinson, could you tell us the circumstances which led to the submission of this document to you and any action which was taken as a result of it?

A. Yes. I received the report of Mr. Statz, referred to here, and turned it over to my assistant, Lou Howe, who was a chemical engineer specializing in the economic evaluations of processes, projects, and asked him for a review, and this is his report to me on the subject.

Q. What did you do on the basis of this report?

A. Well, this report substantiates everything I have been [fol. 2348] telling you so far and my own view on the profitability or lack of profitability of a sodium chlorate plant, and I am sure at the next meeting where this subject was brought up I again pointed out that we would have to have a more accurate and detailed analysis before I would recommend that our company put money into the project.

Q. And whose suggestions were the capacities of 10,000 tons, 20,000 tons and 25,000 tons per year used in this study?

A. I don't know.

Mr. Freed: I would like the reporter to mark as Plaintiff's Hopkinson Exhibit 5 a memorandum dated March 8, 1960, to Mr. Hopkinson from H. J. Reed.

(Memorandum above referred to marked Plaintiff's (Hopkinson) Exhibit 5 for identification.)

Q. What was Mr. Reed's position, sir?

A. He was in charge of engineering, vice president for engineering, for the corporation, and on the formation of the capital appropriation request committee, he was made chairman of it.

Q. Do you know what Mr. Reed meant in paragraph numbered 3 by a "battery limits plant"?

[fol. 2349] A. Yes. He means, by "battery limits," a plant confined to the actual production facilities of the product, in this case sodium chlorate, which plant would not include service facilities and utilities, power supply and all the other extraneous appendages that have to be added to a plant if located out in a brand new location.

Q. Do Mr. Reed's comments in paragraph 3 mean that up to this point the economic calculations had not been on the basis of a battery limits plant grafted onto an existing installation?

A. I believe he is pointing out that because of the low rate of return, it may be that the figures for capital investment have included the usual facilities and utilities, roads and so forth, that would have to be added, and that we might find that the capital investment would be less if it were purely a battery limits plant, but, as he says here, he doesn't know.

Q. Was anything done with respect to this recommendation?

A. Oh, yes. A number of things were done, but the result of all the investigations that we made was that the capital was not less than that indicated but approximately the same [fol. 2350] or more.

Q. The capital for a battery limits plant was the same or more than——

A. The figures that had already been submitted to us.

Q. I am a little puzzled by your answer, sir. What do you mean, if you can explain it?

A. I mean that we found that the estimated capital required for the facilities, as previous to this—as presented

previous to this statement here, were in fact done properly and should have been included as capital required for the plant.

Q. And those estimates were based on an entire installation, or were they based on a grafting project?

A. A grafted plant.

Q. That is the way the estimates were made and that was proper; is that what you mean?

A. Yes; but that does not mean that it was confined entirely to a battery limits plant. In a venture of this type, you must add to your battery limits plant its fair share of any facilities that it requires, even though it is grafted on another plant.

Q. And had those calculations been incorporated?

[fol. 2351] A. Yes.

Q. They had?

A. Yes.

Q. Item 6 in Hopkinson Exhibit 5 refers to a possibility of adding "a related product to the projection order to sweeten up the economics a bit."

Was any consideration given to that possibility?

A. Any consideration would have been done by the division, who made this original statement. The obvious material would be ammonium chlorate—perchlorate, and I don't remember that this was added or was ever a part of the project.

Q. Do you recall that perchlorates were mentioned at the time of the joint venture agreement and the incorporation of Penn-Olin as a possible future product of Penn-Olin facility?

A. I don't recall.

Mr. Freed: I would like the reporter to mark as Plaintiff's Hopkinson Exhibit 6 a memorandum from Mr. Hopkinson to Mr. Osborne dated March 9, 1960.

(Memorandum above referred to marked Plaintiff's (Hopkinson) Exhibit 6 for identification.)

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[fol. 2352] Q. Could you identify for us, sir, the other members of the committee? We already know that Mr. Block was head of the Chemicals Division and Mr. Otter-

strom was the comptroller, but who were Mr. Drummond and Mr. Williams at this time?

A. Mr. Drummond was vice president for marketing, and Mr. Williams was vice president for engineering, at the corporate level in both cases.

Q. And who was Mr. Sanderford?

A. He is in the accounting division and was the representative of our comptroller in many of these evaluations of new projects.

. . . . . .

[fol. 2353] Q. Mr. Hopkinson, can you tell us, if you know, why the chairmanship of the evaluation committee was given to you instead of to someone who had been more closely familiar with the negotiations and the background of the Pennsalt contract?

A. I think that's very clear. My responsibilities were those of checks and balances on the divisional operations, particularly chemical. To have handed the chairmanship of an evaluation committee to the Chemical Division, or any member of it, would be like appointing a biased judge.

. . . . . .

[fol. 2354] Q. Mr. Hopkinson, I show you the full Whither Report from which the extracts in Plaintiff's Exhibit 8 were made and direct your attention to page I-20. The last column of that page, I believe, is entitled "Penn-Olin So-[fol. 2355] dium Chlorate Plant."

I ask you if you can recall the considerations which the corporate staff committee, of which you were a member, gave to this Whither Report with respect to the Penn-Olin project in July, 1960.

A. We recommended it be turned down.

Q. And can you tell us why?

A. Unsatisfactory rate of return.

Q. And are you referring here to the 9.3 per cent figure?

A. Yes.

Q. Can you tell us what action the committee took at the time it turned down this project?

A. It just recommended to Mr. Osborne that we turn it down.

Q. And what happened then?

A. The Chemicals Division asked for a rehearing, as I remember it.

Q. And was that rehearing granted?

A. Yes.

Q. And what happened?

A. It was turned down again.

Q. After the second rejection, what occurred?

A. We sent two engineers down to examine into the plant [fol. 2356] in great detail, and as a result of that they reworked the figures, found that the cells could produce more sodium chlorate than they had estimated before, and that changed the rate of return a little bit. They found that they did not need to drum the material, and that was a rather expensive facility and it cost money to do the drumming. With the elimination of those two things, they reworked these figures and came up with a return of 10.1 per cent, I believe.

Q. I would like to show you, Mr. Hopkinson, a document entitled "Penn-Olin Chemical Company Capital Appropriations Request, Sodium Chlorate Plant, Calvert City, Kentucky, Revised August 29, 1960."

This document has previously been identified as Plaintiff's Wood Exhibit No. 3.

I ask you whether that is the document in which the revised estimates on sodium chlorate, to which you referred, was presented to the corporate staff or to the capital appropriations committee?

A. I believe it was.

Q. And does your examination of that report enable you to indicate any other factors, apart from the ones you have already testified to, respecting the reasons for reversal of [fol. 2357] the decision with respect to the Penn-Olin venture?

A. No.

* * * * * * *

Mr. Freed: I would like the reporter to mark Plaintiff's Hopkinson Exhibit 9, a memorandum from R. L. Dietrich to "Permanent Members of CAR Committee," dated July 28, 1960.

(Memorandum above referred to marked Plaintiff's (Hopkinson) Exhibit 9 for identification.)

Q. Sir, I show you Plaintiff's Exhibit 9 and ask if you can recall receiving a copy of those draft minutes of a capital appropriations committee meeting held on July 27, 1960. I might add for the record that the red lines which appear on that exhibit were placed on that by counsel for the government, and at the time this document is later used we would hope to secure a copy that does not have extraneous markings.

A. Yes.

Q. Were you present at the capital appropriations committee meeting that discussed this subject, sir?

[fol. 2358] A. Yes.

Q. Item 4 of these draft minutes states that "Sodium chlorate is in surplus and substantial quantities have been offered to us. There appears to be no incentive for other producers to go into the business at this time."

Can you enlighten us as to the information concerning the surplus condition of sodium chlorate in July, 1960, and also with reference to the offer of substantial quantities of sodium chlorate which had been made to Olin according to these minutes?

A. On the first point, the surplus production was merely obtained by adding the productive capacity of all the plants in the United States, and that was in excess of the total quantity of sodium chlorate actually made and consumed, but this takes no recognition of location of plants. It is uneconomical to move sodium chlorate or any other chemical very long distances.

On the second point, I have no knowledge about the availability of quantities made to us.

Q. Do you recall whether any representative of the Chemicals Division was present at this CAR committee discussion? In other words——

[fol. 2359] A. I don't know——

Q. ——what was the source of the information here about surplus and about substantial quantities?

A. Well, that was contained in the information obtained from the Chemicals Division.

Q. Was that information transmitted in a written report?

A. I don't know.

Q. Paragraph No. 5 in these minutes states:

"There has been little doubt that the product could be sold. We would gain very little business in other products by having sodium chlorate available."

With respect to that latter sentence, can you tell us the reasons why the minutes reflect the feeling that Olin would gain very little business in other products by having sodium chlorate available?

A. Well, I assume that they are referring to the fact that pulp and paper customers use other chemicals of ours besides sodium chlorate and might give us orders for carload shipments which might include all of the products that they will use. I don't see any other explanation of it.

Q. This sentence reads:

[fol. 2360] "We would gain very little business in other products by having sodium chlorate available."

Was there a feeling that the availability of sodium chlorate would have an influence on a customer's, or a potential customer's, desire to buy, depending on whether or not that customer bought other products?

A. Well, I think I just explained it. If he was a small customer and wanted a carload or small quantity of chlorate and other chemicals, he might want to combine his order.

Q. Paragraph 5 of these minutes contains this sentence:

"We would probably even lose some caustic business by the use of trade relations to sell chlorate."

Can you recall the discussion that is reflected by these minutes?

A. No, but a customer might easily say to one of our salesmen who try to sell him chlorate, "Well, I now buy so much caustic from you and I am not going to increase my purchases from you by buying chlorate in addition, so if you want me to buy chlorate, I am going to reduce the quantity of caustic soda I buy from you."

[fol. 2361] Q. Can you recall whether this possible loss of other business was referred to in any report to the capital appropriations committee by the Chemicals division?

A. No, and I don't think we took it very seriously either.

Q. Who brought up this possible loss of business?

A. I don't know.

Q. Paragraph 6 of this exhibit states as follows:

> "The profit margin on chlorate is so low that it can only be produced as an adjunct of a chlorine-caustic plant in the Va. area. If at a future date, prospects look better, we can build a chlorate plant tied to the proposed chlorine-caustic plant in the Chattanooga area. This would have freight and operating advantages over the Calvert City location."

Can you recall any of the discussions which are reflected by the paragraph I have just quoted?

A. Well, I would not be a party to that thinking anyhow because to build a plant ourselves, as I have said many times today, would just be beyond our competence, so that there was no opportunity of attaching a chlorate plant to a poten-
[fol. 2362] tial Chattanooga chlorine facility, by my way of thinking.

. . . . . .

[fol. 2363] Q. Can you tell us why the Penn-Olin venture was ultimately given the go ahead, even though its return on investment was only 10 per cent?

A. Well, I think it met the criterion of the—what I just explained before, a 10 per cent return on a venture in which we combined the sales knowledge and production knowledge.

Q. But wasn't that the same venture that Mr. Reed was referring to here?

A. Yes. Ideally it should have been 12 per cent. Your 10 per cent you can regard as a minimum.

. . . . . .

[fol. 2364] Q. I believe the two factors that I mentioned were the factors that were brought to the attention of the CAR committee in the August 29th capital appropriation report which you had before you. Now, were the factors that I mentioned and the increase in the return on the investment that resulted from that the sole reasons that led the capital

appropriations committee to make a reversal of its own recommendation in respect to the Penn-Olin plant?

A. So far as I know.

Q. Did that decision of the capital appropriations committee give a go ahead to the project, or were there other steps that followed?

A. Oh, the project had to be authorized. I don't know how far up in the corporation it has to go for a project of this size, but I don't think that even the president has the authority to go ahead with a project this size without consult-
[fol. 2365] ing with either the executive committee or the directors.

Q. So that following your deliberations as part of the capital appropriations committee, the recommendation of your committee went farther along in the corporate flow of business before it was approved; is that correct?

A. Yes.

. . . . . .

[fol. 2366] Q. Mr. Hopkinson, the August 29, 1960, capital appropriation request, which contained the 10.1 per cent return-on-investment figure, led the committee to approve the project. I would like to direct your attention, sir, for comparison purposes with the capital appropriations committee report, to page 51 of the 1959 Whither report, which page is a revision dated October, 1959, and ask you to tell us what the return on investment for sodium chlorate plant by Olin at Chattanooga was predicted as?

[fol. 2367] A. It is stated here as 13.1 per cent.

Q. Can you tell us, sir, why that return on investment calculated in the October, 1959, Whither Report was not satisfactory in terms of the investment policy criteria which you outlined for us earlier in your deposition today?

A. It would have been if it had—if the figure had been believed.

Q. And were there any facts known to you at the time that figure first came to your attention that led you to disbelieve it?

A. Yes, the capital investment was far too low. I therefore doubted the validity of the whole calculation.

Q. Do you recall whether these calculations were specifically reviewed by any group of which you were a member?

I believe you testified earlier that you had no recollection of a meeting in October.

A. No, I have no recollection of a meeting, and this is a Whither Report in which the divisions are not held to any specific rate of return because there is nothing to be approved or disapproved, excepting their general, overall plan [fol. 2368] for going ahead.

Q. Do you recall when the 13.1 per cent figure first came to your attention and consideration?

A. No, I don't.

Q. Can you recall whether you were aware of it at the time you began to consider the Penn-Olin project?

A. I don't believe I was. I was aware of my own previous figures on the same type of plant, which were considerably different than the 13.1 and considerably lower.

Q. To which figures are you referring, sir?

A. To the figures that had been developed previously, ever since 1956, concerning the profitability of sodium chlorate.

Q. Did you at any time undertake a study of the basis on which these particular figures in the October, 1959, version of the Whither Report, coming as they did after a series of projections and revisions of the sodium chlorate project, were based?

A. No, I did not.

* * * * * * *

[fol. 2369] Q. In light of the policy with respect to joint ventures, which you testified to earlier, the desire on the part of yourself, at least, that Olin enter a business on its own rather than as a joint venture, if that were possible, can you tell us why a detailed study for the purpose of verifying or contradicting the 13.1 per cent return-on-investment figure in the 1959 Whither Report was not conducted?

A. Well, to check up on all the figures that are presented here would require more man hours than certainly I had at my command. This one was one that was obviously and definitely out of place, and at this particular time I am not

aware that the project was in the state where a capital appropriation request was to be presented. Therefore, it was not one of the most urgent projects for investigation.

Q. At the time that you undertook consideration of the [fol. 2370] Penn-Olin sodium chlorate project, was the possibility of Olin's own entry into that business independently then a matter of urgency to consider?

A. Yes, but there would be no difference in the return of whether we did it jointly with Pennsalt or whether we did it on our own. The plant would be the same. It would have the same utilities and adjacent facilities if it were put by our chlorine plants or whether it were put by Pennsalt's plants, so you would expect the same capital investments would be there; it would be making the same product, the rate of return would be the same. The question in my mind was merely one, or would be merely one of have we got the technical know-how to produce this material or have we not, and, as I told you, I do not believe that we did have, and I do not believe we now have the capabilities of producing sodium sulphate—chlorate and that Pennsalt had. Therefore, a joint venture with Pennsalt is the only way in which we could go ahead.

Q. To your knowledge, did anyone in the company request verification of the 13.1 per cent figure which is contained before you in the 1959 Whither Report prior to the [fol. 2371] decision to proceed with the Penn-Olin venture in the early part of 1960?

A. I don't remember that such a thing was brought up but I am sure that if it were taken seriously, it would be immediately questioned by anyone looking at it.

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[fol. 2372] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 410

Baltimore, Maryland

EXCERPTS FROM DEPOSITION OF JAMES G. JOHNS TAKEN ON JULY 27, 1961 AND SEPTEMBER 8, 1961.

* * * * * * *

[fol. 2373] JAMES G. JOHNS a witness of lawful age, having been first duly sworn by the notary, was examined and testified as follows:

Direct examination.

By Mr. Freed:

Q. Mr. Johns, will you state your name and address for the record, please?

A. James G. Johns, 3900 St. Paul Street, Baltimore 18, Maryland.

Q. Are you presently the General Sales Manager of the Chemicals Division of Olin?

A. As of a week ago, my title was changed to Director of Marketing, Industrial Chemicals. This is nominal rather [fol. 2374] than an actual change, as of this moment.

Q. How long have you been employed by Olin or its predecessor company?

A. I was first employed by Mathieson Alkali, a predecessor of Olin, approximately January, 1941.

Q. And what was your starting position with the Company?

A. My initial responsibility was Sales Correspondent, Technical Sales Correspondent. That was the designation.

Q. And what did that job consist of briefly?

A. Principally replying to customers' inquiries mostly of a technical nature.

Q. When in your tenure with Mathieson did you first become associated with the selling operation?

A. I would say that initially, I was associated with the selling operation.

Q. And have you at all times since 1941 been affiliated with Mathieson or Olin Mathieson as a salesman or in the selling branch?

A. Yes.

Q. Could you give us a quick run-down of your subse-
[fol. 2375] quent titles or duties between 1941 and today?

A. Sales Representative. District Sales Manager in several capacities and locations. Manager of the then Resale Department. Field Sales Supervisor. Assistant Field Sales Manager. General Sales Manager, and my present title, to the best of my recollection.

* * * * * * *

[fol. 2376] Q. My question, sir, is designed to have you explain to us ingredients about some freight costs which you have already mentioned that went into a successful sales solicitation or sales promotion effort.

A. For many years these bulk chemicals, which are essentially raw materials to the industries consuming them, have been supplied to them, have been purchased by them on an annual contract basis. This means, by and large, that you are not competing for single orders but instead for a long term sales relationship with that consumer. I would think that the important considerations were quality of the material with respect to the requirement, reliability of the supplier in respect to on-time shipments, delivery of shipments [fol. 2377] when required because of the huge expense of a nondelivery to a processing industry, the customers own estimates of the suppliers' technical, production and transportation abilities, all of which affect your services to him. In general, these I believe, did outweigh and continue to outweigh pure pricing considerations.

Q. During most of the period you have described were the prices of these products substantially the same among all competing producers?

A. The period we are discussing begins 1953——

Q. Yes, sir.

A. —forward to today?

Q. Yes.

Mr. Barnum: You are talking about delivered prices, Mr. Freed?

Mr. Freed: If delivered price is the important criterion to a customer, then address your answer to delivered pricing. If there is another measure of price that was considered important in sales promotion efforts, you may alternate.

A. I would say that competition worked, the effects of [fol. 2378] competition worked to quickly adjust any advantage in delivered cost to a customer—whether it be created by the construction of a new plant, the adjustment of a freight rate structure, or the adjustment of the price by ourselves or a competitor—competition quickly worked to equalize the lowest delivered cost at which that consumer could receive materials in comparable quantities and qualities. Otherwise, ignoring this would raise an important consideration in the customer's mind about the supplier concerned.

. . . . . .

[fol. 2379] Q. Excuse me, I was referring to the memorandum of December 10, 1959 from you to Mr. McMullen which is marked Olin C 360a and my question is directed to the relationship between the amount of tonnage which would be available in 1960 to the two different amounts of sodium chlorate mentioned in Mr. Logan's memorandum to you.

In order that the record may be clear, Mr. Logan's memorandum to you in November indicated that 5000 tons of sodium chlorate might be available for resale by Olin in 1960, if a joint venture were to proceed but if the venture would not proceed then the smaller amount of 2000 to 2500 tons would be available. Do these two documents together in any way refresh your recollection as to the reasons why the lower tonnage limits were imposed?

A. I believe, Mr. Logan's memorandum of November 18th actually imposes the 2500 ton limit on me since he closes it by saying in all probability we will not proceed with a joint venture. I would interpret that as indicating I should not commit beyond 2500 tons.

[fol. 2380] Q. Then as you understood the situation at the time you gave the instructions to Mr. McMullen the probabilities were there would not be a joint venture, is that correct, sir?

A. Mr. Logan makes that statement to me.

Q. And was that the understanding on which you gave the instructions to Mr. McMullen or do you have no recollection about it from what is reflected in the documents?

A. My best recollection is that before issuing final instructions to Mr. McMullen here because contracts as you see were in process I advised Mr. Logan verbally that I was proceeding on the basis of the 2500 ton estimate and received his concurrence. I did not, however, ask him for an explanation.

. . . . . .

[fol. 2381] Q. Do you know, sir, who your counterpart in the Pennsalt organization is today?

A. No, I don't. I don't know if Pennsalt has an exact counterpart. I am not familiar with their organizational lines.

Q. Have you had occasion at any time during the year 1961 to discuss the marketing of any of the products under your supervision with anyone in Pennsalt?

A. I don't recollect any such occasion.

Q. Do you recall when the last meeting of the Board of Directors of Penn-Olin Chemical Company was held?

A. Do I recall the date?

Q. The approximate date, if you know.

A. No, I do not at the moment.

Q. I believe the record will show, at least insofar as [fol. 2382] reflected by the documents produced by the Defendants that there was a meeting of the Board of Penn-Olin in October 1960. Directing your attention to the period since that date, have there been any meetings at which you have been a participant at which persons responsible for the sale of chemical products in Pennsalt and in Olin have met?

A. The date was October 1960?

Q. I believe that's correct, sir. I believe the date is October 1960.

A. Unless there is a subsequent meeting of the Board of Directors, my recollection is that is the last occasion of meeting with those people.

Q. Would you read back the last few words of the answer?

(The answer referred to above was read by the reporter.)

Q. Then, to the best of your knowledge, not since the last recorded Board Meeting of Penn-Olin have you had occasion to meet with or talk with Mr. Clem or Mr. McWhirter, is that correct, sir?

[fol. 2383] A. I cannot recall a meeting with either of those gentlemen subsequent to the last Board Meeting.

Q. Can you recall since the formation of Penn-Olin Chemical Company any discussion at which you have been a party at which the problems of selling sodium chlorate have been discussed?

A. Dating from the formation of Penn-Olin?

Q. Yes, sir.

A. There was previous testimony with reference to a sales committee meeting, minutes were taken at that meeting, I do not recall that there were discussions there pertaining to the sale of sodium chlorate. My recollection is, we discussed purchase—the necessity to purchase sodium chlorate.

. . . . . .

[fol. 2384] Q. Has there been any change, to your knowledge, in the prospects for the total amount of consumption of sodium chlorate at Niagara Falls that would be greater than the amount stated under the column, Olin Mathieson Participation in this document?

A. Any change at our work would probably be for some-

[fol. 2385] what less consumption due to intense competition from imported materials.

Q. Competition in the sale of what product, sir?

A. Imported sodium chlorite.

Q. Is sodium chlorite a chemical which falls under your marketing responsibility?

A. Yes, sir.

Q. And could you describe for us the competition which Olin has recently encountered in the sale of sodium chlorite?

A. Over the past five or six years there have been increasing quantities of sodium chlorite principally from West German sources entering the country and being offered at substantially reduced prices, prices substantially below the domestic market. The distribution of these materials has moved steadily inland from the seaboards over this period of time.

Q. Can you give us any idea of the magnitude of sodium chlorite sales in the United States at the present time?

A. I would estimate they are less than five or six thou-[fol. 2386] sand tons per annum.

Q. And are there any other domestic producers of sodium chlorite apart from Olin?

A. Not at the present time.

Q. And approximately what portion of the total domestic production of sodium chlorite is supplied by Olin?

A. This is a very difficult figure to estimate because of the number of avenues through which imported materials comes in and the number of avenues by which it finds its way into the market. I would estimate we have somewhere between 40-50-55% of the market.

Q. Is Olin's production of sodium chlorite on the decline at the moment?

A. Its production and sales, yes.

Q. Can you tell us whether the sodium chlorite market on the whole is a disappearing market or a growing market?

A. As of this moment, I would estimate it could be characterized as a static market.

Q. Do you have any opinions as to the prospects of this [fol. 2387] market?

A. Unless technology developments come along to change it, I would estimate that over the next four or five years, it looks as if it will continue to be fairly static.

* * * * * * *

[fol. 2388] Q. Turn your attention back prior to the time when Calvert City and Chattanooga were viewed as alternative sites for a sodium chlorate facility, did you, during that earlier period make any studies on behalf of Olin respecting the marketing qualities or attributes of Chattanooga as a prospective site for an Olin Mathieson Plant?

A. I do not recall any specific studies. Please remember that Chattanooga was primarily the site of an electrolytic plant representing a much greater investment for us and that the chlorate consideration in connection with Chattanooga was secondary to the electrolytic plant.

Q. Did you have any discussions during this earlier period respecting the location or possible location of a chlor-alkali plant at or near Chattanooga?

A. Yes, we did.

Q. And can you tell us what discussions you had and what the substance of those discussions was.

A. This represented a $13,000,000 investment. There were considerable and voluminous discussions with reference to the plant. As I recall the factors that were decisive were: its location with other producing points, [fol. 2389] its location on inland waterway, and the availability of power in the quantities and at a cost that was attractive to the producer.

Q. In the discussions you had concerning a chlor-alkali plant, were both Chattanooga and Charleston, Tennessee, considered simultaneously?

A. Let me clarify the term Chattanooga as I have been using it. I have used the term Chattanooga to refer to that general area of the Tennessee River in the vicinity of Chattanooga. Charleston is some forty road miles north of Chattanooga.

Q. But, for present purposes, Chattanooga and Charleston are interchangeable for the purpose of your testimony, is that correct, sir?

A. That's right.

Q. At any time during your voluminous discussions and considerations of the location of a chlor-alkali plant at Chattanooga, was the subject of sodium chlorate plant in conjunction with the chlor-alkali plant discussed?

A. Yes, this possibility was discussed, always, according to my recollection, as a secondary consideration.

[fol. 2390] Q. And can you recall when the discussion of this possibility took place and who participated in the discussion.

A. This would have been discussed primarily with Mr. Logan, to a lesser extent with Mr. Wood, our Project Engineers for electrochemical plants, and to some extent with our transportation people who would develop transportation data pertinent to the location of the plant.

Q. And can you recall for us the substance of the discussion which you had with respect to this point namely with the possible association or relation between a chlor-alkali plant and a sodium chlorate plant in the Charleston-Chattanooga area?

A. Basically, it was felt a location in this general area

favorable to a chlor-alkali plant would not be unfavorable to a sodium chlorate plant since both facilities are heavy power consumers and both facilities depend on salt as their raw material. Therefore, it was natural to give them consideration together.

Q. And were any conclusions reached prior to the commencement of the Penn-Olin negotiations respecting [fol. 2391] construction of a sodium chlorate plant at Charleston-Chattanooga?

A. No, as a matter of fact, I would say that the consideration that was given the matter was rather that the site not be a site that would not lend itself to the production of sodium chlorate should that decision be made.

Mr. Freed: Would you read back the witness' last answer, please?

The Witness: I think you had better.

(The answer referred to above was read by the reporter.)

A. What I am attempting to say is that the site not rule out the possibility of locating a sodium chlorate facility there should it become later desirable to do so.

Q. And when was the last time that subject of the sodium chlorate plant in conjunction with the chlor-alkali plant at Charleston-Chattanooga was discussed, to your knowledge?

A. The most recent discussion?

[fol. 2392] Q. Yes, sir.

A. I can't recollect any specific instance that I would characterize as the most recent discussion on that subject.

Q. Were you ever present during the discussions of this matter with Mr. Block?

A. At marketing committee meetings when brief reports of progress on the matter were conveyed to Mr. Block, I would have been there.

Q. From the testimony which has already been given in this deposition and others, Mr. Johns, and from the evidence, which exhibits have been made available, I believe the record shows that a sodium chlorate plant in conjunction with a chlor-alkali plant was projected at Chattanooga in October 1959, in the Whither Report and that towards the end of December, 1959, conversations were initiated between Mr. Block and people in the Pennsalt organization looking toward a joint facility.

I make this statement for the purpose of asking you whether apart from the matters which you have already testified today, you have any information that would il- [fol. 2393] luminate the record as to why Olin made the decision, if it did make the decision, to look toward a joint facility at the end of 1959 after projecting the facilities I have just mentioned as independent ventures in October of 1959.

A. I did not participate in any of the discussions with Pennsalt looking toward this venture. From time to time, I was asked to make certain marketing estimates which had a bearing on the matter. It was subsequently my understanding that Pennsalt know-how, Pennsalt's experience in the production of sodium chlorate were factors which outweighed the marketing considerations which I brought up and these were not brought up as major deterrents to successfully marketing the product. This, I believe, was a primary consideration in a decision to go with Pennsalt on a joint venture.

. . . . . .

[fol. 2394] Q. Have you encountered any situations which you can now recall and when I say you, I mean the selling organization of your Chemicals Division in which a customer or prospective customer of Olin sought to sell Olin products in return for purchasing Olin products.

A. Where a customer sought to sell our products?

Q. To sell to Olin.

A. Oh, I beg your pardon.

Q. Products in order as a quid pro quo perhaps to [fol. 2395] purchase products from Olin.

A. This might come up in a situation where we were consistently pressing for additional consideration on one of our products and where there might be an indication that the customer likewise would like to do more business with us.

Q. And what is Olin's response in situations of that kind?

A. As a marketing organization, we are very severely limited in these situations. It is the policy of the corporation not to use the corporation's purchases for marketing purposes. This, first of all, defeats your marketing objec-

tives because it has a tendency to limit your sales to the exchange of purchases for purchase. Secondly, it defeats good purchasing practices.

Q. You refer to corporate policy. For how long has this been a corporate policy?

A. I cannot recall the time in my career in selling with Olin that the sales people had ready access to purchase information either. Nor can I ever recall the time when Olin sales personnel, Chemicals Division sales [fol. 2396] personnel, with which I am most familiar, were encouraged or even permitted to use this as a selling tool.

* * * * * * *

[fol. 2397] Q. Are salesmen in the Chemical Division made aware or permitted to be aware of the identity of those prospective customers who happen to be major suppliers of Olin Mathieson Chemical Corporation?

A. You mean are they systematically made aware of those people among the group that they call on who are large suppliers of Olin Mathieson.

Q. Systematically or otherwise?

A. No.

Q. Can any salesman who wishes to increase his own sales secure information regarding purchases by the corporation from various prospective customers?

A. Can he secure information from customers?

[fol. 2398] Q. Can he secure information within Olin about Olin's purchases from these prospective customers?

A. No, he very definitely cannot and all of our salesmen are quite aware that it isn't our policy to use our purchases for selling purposes. They are well instructed, I believe, that they should initiate no discussions in this direction.

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[fol. 2399] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 411

Baltimore, Maryland

EXCERPTS FROM DEPOSITION OF WALTER W. NORTHGRAVES
TAKEN ON JULY 18, 1961

* * * * * * *

[fol. 2400] WALTER W. NORTHGRAVES, a witness of lawful age, having been first duly sworn by the notary, was examined and testified as follows:

Direct examination.

By Mr. Freed:

Q. Sir, would you state your name and address for the record?

[fol. 2401] A. Walter W. Northgraves, 7504 Rocksham Drive, Towson 4, Maryland.

Q. And would you state your present employment, sir?

A. I am an employee of Olin Mathieson Chemical Corporation.

Q. And how long have you been an employee?

A. Twenty-two years.

Q. What is your present position with Olin?

A. We are in the midst of a reorganization and my present position has not been defined.

Q. What was your position prior to the reorganization?

A. I was manager of the Market Development, heavy chemicals.

Q. And from when to when did you hold that job?

A. For the past year, almost a year.

Q. At the time of this deposition today, you do not hold the title of Manager, Market Development, or is some other fact——

A. I have not been informed that I no longer hold the title, but the framework of the organization under which this position existed has been changed.

[fol. 2402] Q. Prior to holding the managership of Market Development, what was your employment with Olin?

A. Market Development Representative.

Q. And the period of time in which you were a representative?

A. Approximately four years.

Q. Is it correct then that you became Market Development Representative around 1956?

A. Approximately, yes.

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[fol. 2403] Q. In 1954, when you first began to work with the pulp and paper companies on chlorine dioxide generation, was Solvay already an established competitor in this field?

A. Yes.

Q. Was it part of your job to promote the adoption of Mathieson process generators over the installation of Solvay systems?

A. It was my responsibility to convey to our customers, or to the mills who were interested in chlorine dioxide, a detailed description of the principles of our process, the equipment required for its operation, the manner of operating the equipment, and briefly to instruct them thoroughly in all aspects of the process.

Solvay of course has done the same thing and the mill would then make up its mind, based on the evidence presented by Solvay and ourselves, as to which process they thought would best suit their particular requirements.

[fol. 2404] Q. Would you describe for us in language that the court would be able to understand, the difference in the two systems?

A. The principal difference and perhaps the only significant difference, is that we, that is to say, Mathieson, use sulphur dioxide as the reducing agent, whereas Solvay uses methanol.

For technical reasons, into which we need not go, the use of methanol requires twice as much sulphuric acid as the use of SO_2.

There are some differences in reaction equipment but these are usually not considered significant.

Q. What are the advantages of the Olin process over the Solvay process as you may have had occasion to point out to a customer or to a pulp and paper company?

A. The cost of chlorine dioxide from the Mathieson process is usually less than that from the Solvay process, in our opinion.

Q. Can you describe for us the difference in cost?

A. There are many factors which bear upon this. [fol. 2405] The delivered cost of sulphuric acid and methanol, and sulphur dioxide, varies from location to location.

A very significant factor also would be whether the mill would purchase sulphur dioxide or manufacture it themselves from sulphur.

In the latter case, there is a significant difference in favor of the Mathieson process.

Q. And is this the factor which has been instrumental in the Mathieson process' success, namely, that the customer has been willing to manufacture its own sulphur dioxide for use in the process?

A. No, not—certainly not in every case. In the past two or three years there have been a number of installations of the Mathieson process which used purchased sulphur dioxide.

Q. Expressed in terms of dollars, what is the typical cost advantage to a company in installing the Olin process over that of Solvay, in your opinion?

A. As I stated before, it varies widely and the difference might vary from essentially nothing to as much as thirty [fol. 2406] or forty dollars per day, per ton of chlorine dioxide manufactured.

Q. Is there any difference in the quality of bleaching from either process?

A. Not in my opinion or I believe in the opinion of anyone else.

Q. Is there any difference in the ease of operation?

A. This is a controversial area. We think ours is easier and Solvay thinks theirs is easier and opinion varies throughout the industry.

Q. In the effort which you exert on behalf of Olin, what do you tell the customer or the paper company are the

principal advantages of the Mathieson process over the Solvay process?

A. The principal advantages are economic.

Q. That it is cheaper to operate?

A. Yes.

Q. How about the cost of installation, relative size of the cost of installation?

A. It is essentially the same for the two processes when purchased sulphur dioxide is used.

[fol. 2407] Q. I am sorry, sir, I thought you said before that sulphur dioxide was only used in the Mathieson process?

A. Perhaps I should clarify that by stating again that sulphur dioxide used in the Mathieson process may be purchased or manufactured at the site.

When it is purchased, the equipment required for the Mathieson process is substantially the same in cost as that required for the Solvay process. When sulphur dioxide—when the cost of sulphur dioxide manufacturing equipment is added, the total cost is of course higher.

Q. Then in terms of the economics which a pulp manufacturer must face, is it correct to say that the cost of installation will be higher if he chooses to manufacture his own sulphur dioxide, but his operating cost will be lower because he will be able to make his own sulphur dioxide rather than purchase it.

A. Yes.

[fol. 2408] Q. And as of today, as part of the Solvay and Mathieson processes are there any other methods by which pulp can achieve this degree of brightness with the other characteristics you have described?

A. Well, now, the Mathieson and Solvay processes are not directly related to the means of achieving brightness, but only the methods of manufacture of chlorine dioxide which is used to achieve the brightness.

Q. I understand that but on that premise would you——

A. There are two other processes which are in use in this country. One of them is the Day Kesting process used by Brown Company in Berlin, New Hampshire.

The second is the Rapson process.

[fol. 2409] Both use sodium chlorate. The Day Kesting process involves the manufacture of sodium chlorate in equipment which is an integral part of chlorine dioxide manufacturing equipment.

The Rapson process operates on purchased chlorate, as do the Solvay and Mathieson processes.

Q. Is the Rapson process used at all in the United States?

A. To the best of my knowledge it is now in use in three mills.

Q. Are those very recent installations?

A. This is a quite recent development, yes.

Q. Can you tell us the mills that are using the Rapson process?

A. I don't know as a certainty, but it is my general understanding that there are three mills in the south, one of which is an International Paper Mill.

This process is being operated in equipment which was originally installed for the Mathieson or the Solvay processes.

There are certain local reasons which are more or less [fol. 2410] technical in nature, which make it appear to be more economical.

Q. Did you say "local reasons," sir?

A. Yes.

Q. Does that have to do with the availability of other materials?

A. No, no, it is based upon the type of pulp operation the mill has, the type of wood that it uses, and by-product utilization.

[fol. 2411] Q. Outside of the process you have just described, there are no other methods that you know of for commercially achieving the degree of whiteness that you have described with the other characteristics of the pulp, is that correct?

A. Certainly no economical process.

* * * * * * * * *

[fol. 2412] Q. When you have made calls on pulp and paper companies, with sales representatives, where the call did not relate to technical services, what did those calls relate to?

A. I think they related to the fact that in the case of sodium chlorate, for example, this was a chemical which was new to our sales personnel, and I had specialized knowledge in that field, and that these calls were to assist our sales people in acquainting themselves with this particular chemical and the methods of handling and application, and so on.

Q. Can you recall any specific call that you made with a sales representative, to a paper company, on such a mission?

A. Yes, I can recall a number of such calls: East Texas Pulp and Paper, Crosset, and perhaps a dozen others, and if you think it is necessary, I will try to recite them. See, I embarked upon a series of calls for the express purpose of helping to educate our salesmen in this field, as I have already mentioned.

[fol. 2413] Q. When you say your purpose was to help educate the salesmen, are you saying that in your contact with the company, you made no—you did not yourself solicit any sales, but were merely there to answer questions the salesmen could not answer, or did you play a different role than the one I have just described?

A. I think it could best be characterized as a cooperative effort on the part of the salesman and myself to obtain commitments from the various mills for sodium chlorate.

Q. In the vist which you made to East Texas Pulp and Paper Company, who was the salesman who accompanied you?

A. Mr. Shoemaker.

Q. When did you and Mr. Shoemaker make this visit to East Texas?

A. To the best of my recollection, it was sometime last fall.

Q. And who was the representative of East Texas whom you visited at that time?

A. The director of traffic and purchasing, whose name was Mr. Baker, I believe, Cliff Baker.

[fol. 2414] Q. Prior to this visit, had East Texas ordered any sodium chlorate from Olin, to your knowledge?

A. I do not know whether they had ordered sodium chlorate. I believe they had expressed the possibility that they would consider doing so.

Q. And as a result of your visit with Mr. Shoemaker, did East Texas order sodium chlorate from Olin?

A. I believe they reiterated their intention of so doing and to the best of my knowledge and belief, they subsequently ordered material from us.

Q. Can you describe for us the conversation which you had with Mr. Baker during that call on East Texas?

What did you say to him?

A. Well, I believe I pointed out to him the advantages to East Texas of our entry into the sodium chlorate field.

Q. By entry into the sodium chlorate field, what did you refer to?

A. Our ability to provide or to furnish them sodium chlorate from the new Calvert City facility.

Q. Then your visit with Mr. Shoemaker was made in an effort to promote the sale of sodium chlorate from Calvert [fol. 2415] City?

A. Very definitely.

Q. In the course of your conversation with Mr. Baker, did you at any time refer to the work which you had done with his company in connection with the installation of the Mathieson process generator?

A. It was mentioned in a very casual manner, since he was certainly very well aware of the work which we had done.

Q. You referred to the benefits that you brought to Mr. Baker's attention, from the sodium chlorate business that Olin was now in. Can you describe to us what you told Mr. Baker about those benefits, what benefits to which you referred?

A. I believe I stated in substance that because of the remote location of the Pennsalt facility in Portland, Oregon and its relatively small size, it was really not a factor in the eastern and southeastern market and therefore there were only two suppliers of an essential chemical and the entry of the third supplier into the field would represent substantial advantages to the consumer.

[fol. 2416] Q. What were the advantages you suggested or pointed out to Mr. Baker?

A. Well, I think it is generally accepted that the more suppliers there are of the material, the more stable is the market likely to become, from the standpoint of the con-

sumer, and our entry into the field constituted a 50 percent increase in suppliers of this important chemical. I also pointed out that Hooker's action in stabilizing or attempting to stabilize the price for a five-year period, certainly could be attributed at least in part to the appearance of further competition in this field.

Q. Did you make any statement to Mr. Baker with respect to the likelihood that there might be price advantages or reduction that would flow to his company from the entry of Olin and Pennsalt into this field?

A. Nothing in addition to the answer I gave to your last question.

Q. Do you know who was then supplying East Texas with sodium chlorate?

A. American Potash, and Hooker.

Q. In your conversation, did you or Mr. Shoemaker, [fol. 2417] urge that his company purchase sodium chlorate from you instead of Hooker and American Potash?

A. Well, I think it is obvious that any business we received from East Texas would be at the expense of either Hooker or American Potash or both, certainly in the absence of increased consumption of this material.

Q. To the best of your knowledge, has the sodium chlorate which has now been sold to East Texas as a result of your efforts, been as the sale of a third supplier to East Texas, or have you replaced in whole either of American Potash or Hooker's former sales?

A. I am certain we are there as a third supplier.

Q. During your conversation with Mr. Baker, was any specific reference made to the new company as a third and additional supplier, as opposed to as a supplier who might replace the sodium chlorate being sold to East Texas in whole by either Hooker or American Potash?

A. Yes. I think everyone would like to have all the business, but that is quite impossible, of course.

Q. Is your expectation in any of these solicitation efforts limited to the expectation or hope that you will become a [fol. 2418] third supplier to each company that you visit?

A. Well, it may be limited—it is certainly I think limited to the expectation, but such hopes as we might have would be impossible of fulfillment.

. . . . . .

By Mr. Freed:

Q. To your knowledge was Olin, at the time of your visit to East Texas, a customer of East Texas for any product which that company was then producing?

A. Not to my knowledge.

Q. Was any reference made during the course of your conversation with Mr. Baker to the possibility of Olin purchasing any products from East Texas?

A. I cannot recall any such specific remark; no.

Q. If any such remark had been made, would you recall it, even if you cannot recall it in detail, or are you stating that there was no such conversation?

A. During the course of our contacts with the pulp [fol. 2419] and paper industry, it was very frequently brought out that Olin sells far more to the pulp and paper industry than it buys from it, and remarks of this type are frequently made more or less in passing.

Q. Remarks of what type?

A. To the effect that, as I stated, Olin sells more chemicals to the pulp and paper industry than they buy in return products of the pulp and paper industry. In other words, there is a serious imbalance in dollars, if you wish to refer to it in that manner.

Q. And when such conversations take place, what is the context in which they arise? Why are remarks of that kind relevant in your conversations with prospective sodium chlorate customers?

A. As far as I am concerned, they are not relevant at all, because they have nothing to do with buying anything.

Q. When I say relevant, how do they arise in the course of conversation, without passing judgment on their importance or significance?

A. Well, I think the hope is usually expressed in a general way, or the wish is expressed, that Olin were buying [fol. 2420] more paper or pulp.

Q. Do you recall whether any such remark was made by Mr. Baker in the course of the conversation which you and Mr. Shoemaker had with him?

A. It could well have been made but I do not recall any specific such remark.

Q. Whether or not any specific such remark were made by Mr. Baker, if it had been made, it would simply be, is it

correct to say, it would simply be typical of the kind of conversation that would arise in the typical sodium chlorate sales effort you might make?

A. Yes.

Mr. Barnum: That Mr. Baker might make?

Mr. Freed: No, that Mr. Northgraves might make or Mr. Shoemaker?

The Witness: Yes, I think it might arise in conversations relating to sodium chlorate or conversations relating to any of the chemicals which we sell to the pulp and paper industry.

By Mr. Freed:

Q. With specific reference to sodium chlorate sales ef-
[fol. 2421] forts or missions in which you have been engaged, can you recall any specific case in which a representative of a pulp or paper company brought up the subject of Olin's purchases, past or prospective, of products of that company?

A. I cannot recall a specific instance but I must reiterate that it is something which does come up frequently in a more or less general way.

Q. In your recollection, has any pulp or paper company ever specifically asked whether Olin would purchase products from it, in return for the company's order from Olin of sodium chlorate?

A. No.

Q. Has any such equivalent request been made in connection with the sale of any other Olin product to a pulp or paper company, that you can recall?

A. Not to my knowledge.

Q. In any of the conversations which you have had with pulp or paper companies, have you ever made any statement to a paper company with regard to the possibility of Olin's purchasing products from that company?

A. No.

[fol. 2422] Q. Have you ever been present when a representative of Olin, sales representative of Olin, has made any such statement?

A. I cannot recall any such instance.

(Recess taken.)

[fol. 2423] By Mr. Freed:

Q. The testimony which you gave before the recess with regard to East Texas covered in some detail the sales promotion effort which you and Mr. Shoemaker engaged in.

Would you say that your testimony with respect to that visit to East Texas is typical of the kind of coverage kind of sales effort, which Olin made, insofar as your visits to the dozen or so paper companies with sales representatives of Olin are concerned?

A. Yes, I think that is a fair statement.

Q. And can you tell us when you first participated in a sales visit to a pulp and paper company, in connection with sodium chlorate sales?

A. To the best of my recollection, it was last fall or possibly late last summer. I cannot recall precisely.

Q. Do you recall offering your sales assistance to Mr. Smith in New York?

A. Oh, yes.

Q. Mr. Smith is the Olin sales man in the New York area?

A. He is district sales manager there, yes.

Q. To the best of your recollection, would say he is the [fol. 2424] first of the Olin salesmen to whom you offered your assistance, or to whom you gave your assistance in selling sodium chlorate?

A. I am quite sure he was not the first.

Q. Do you recall who the first one was?

A. I cannot recall the sequence in which these calls were made. With reference to the call at East Texas, I guess the call was one of the early ones, but I have no certainty in that regard.

Q. I would like to show you a document dated October 14, 1960, from Vernon Woodside, to Mr. J. G. Johns, numbered Olin C-214 and ask you whether, to your knowledge, this was the first time, whether this document represents a starting point in the sales effort which you gave to promote sodium chlorate sales in the latter part of 1960?

A. If it was not the first, it was certainly close to the first. This was obviously the period of time in which my activities started.

Q. Were your efforts in sales promotion work on behalf of the joint company successful as you look back on them?

A. We have received commitments and orders for

[fol. 2425] chlorate from most of the mills on which I called, and certainly I would like to think that my efforts had a bearing on this, in at least some cases and to some degree.

* * * * * * *

[fol. 2426] By Mr. Freed:

Q. Are you familiar with the nature of the sales efforts made by American Potash and Hooker, in their efforts to promote the sale of sodium chlorate which they manufacture?

A. Only in the most general way, that they are reputable suppliers.

Q. In terms of the ability and knowledge and background and experience of each of those companies to engage in sodium chlorate sales, would you equate those attributes insofar as your company is concerned with that of American Potash and Hooker or would you consider that one or another of these companies has an advantage in terms of [fol. 2427] ability to sell sodium chlorate?

A. Advantage over Olin or over one another?

Q. Over one another.

A. To the extent that service is useful in selling products of this type, I would say that Hooker would have an advantage. I referred earlier to the Rapson process for manufacturing chlorine dioxide. This patent is assigned to Hooker in the United States and, therefore, as far as a potential user of this process is concerned, the Rapson process is the Hooker process.

Dr. Rapson is a world authority on matters relating to chlorine dioxide production and use, and he is consultant to Hooker and his services are made available by Hooker to the pulp and paper industry free of charge.

So I think it is right to say that Professor Rapson is a technical service man for Hooker, in matters relating to chlorine dioxide and pulp bleaching in general.

Q. Are there any services that Dr. Rapson can perform which cannot be performed by Olin and its personnel, including yourself?

A. This is a matter of opinion regarding relative de- [fol. 2428] grees of competence of different people, and

since I am one of the persons involved, I don't think I would hazard an answer to that question.

[fol. 2429]. Q. Well, Mr. Northgraves, your prior testimony was that service was not likely any longer to be necessary in connection with sodium chlorate sales, and I wonder how that testimony is consistent with your testimony just now concerning Dr. Rapson and Hooker's ability to render service.

Can you explain that for the record?

A. I believe so. I think I referred to Dr. Rapson's reputation as an authority on chlorine dioxide production, and upon the bleaching of pulp. The technology of bleaching is in, I think, a continuing state of development, and there are many differences of opinion about the best bleaching techniques to be used in a given instance, and Dr. Rapson purports to be, and I believe is, a foremost authority in this field.

Q. Are Dr. Rapson's talents in this area equally applicable to Solvay, Mathieson and Rapson process generators?

A. He has a wide knowledge of other processes than his own; yes.

Q. Insofar as you personally are concerned, do you consider that Dr. Rapson has more to offer a pulp and paper company, a prospective sodium chlorate customer, than the [fol. 2430] Olin organization can offer such a customer or prospective customer?

A. I believe that Dr. Rapson enjoys a more prominent position in the field of bleaching than myself or anyone else on our staff.

Q. Well, now, removing ourselves from the area of reputation, do you consider Olin to be second best to Hooker, when it comes to its ability to render services to the pulp and paper companies?

A. I don't think that all companies are equally competent in all areas.

Q. And in this particular area, what is your answer?

A. In the area of pulp bleaching?

Q. Yes.

A. It is my personal opinion that Dr. Rapson perhaps has a higher degree of competence than Olin presently has collectively in this field.

Q. And how about the ability of American Potash and its sales organization in the field of sodium chlorate sales and applications?

A. To the best of my knowledge, they have done no work [fol. 2431] on pulp and paper applications of sodium chlorate.

Q. Is it your belief, then, that Olin has an advantage and edge over American Potash in its ability to render services to prospective sodium chlorate customers?

A. To the extent that these services relate to the production of chlorine dioxide, I would say this is probably true.

Q. With respect to your knowledge of the Pennsalt organization and its technical proficiency, how would you rate Olin's ability as against Pennsalt's to render the kind of service which sodium chlorate customers might desire or require?

A. To the best of my knowledge, the two organizations have approximately equal degrees of competence.

Mr. Subak: When you, Mr. Northgraves, speak of the Olin technical ability, are you substantially referring to your own ability, insofar as you are referring to chlorine dioxide generation?

The Witness: To the extent that I have had more experience in this field than anyone else in our organization, I would answer yes.

[fol. 2432] By Mr. Freed:

Q. To your knowledge, Mr. Northgraves, does Dr. Rapson engage in sales promotion activities in the area of sodium chlorate?

A. Certainly the objective, Hooker's objective in retaining him and making his services available to their customers and prospective customers, is for the purpose of obtaining business, specifically, I believe, sodium chlorate business.

Q. As you understand it, is Dr. Rapson's role vis-a-vis Hooker the same as the role you have heretofore occupied vis-a-vis Olin Mathieson?

A. I would say it is roughly similar, yes.

Q. Do you consider, Mr. Northgraves, that a new company entering the sodium chlorate field for the first time

would be at a disadvantage vis-a-vis—in competition with Olin or Pennsalt or Hooker, in its ability to make sodium chlorate sales in light of the considerations about service which you have just discussed?

A. I believe that this would not be a factor because of the fact that the number of new chlorine dioxide instal- [fol. 2433] lations has decreased drastically. That is to say, there would be relatively few opportunities in the future to perform the type of service which we have been discussing.

Q. Do I understand correctly you are now saying your previous testimony concerning Dr. Rapson was a reference to Hooker's advantages and experience in the growth period of chlorine dioxide use in the pulp and paper industry, rather than a reference to Hooker's edge or ability to make sodium chlorate sales today. Is that correct?

A. That is only partly true.

You may recall that I stated that the three installations of the Rapson process which I understand to be now operating are conversions of former Mathieson and Solvay installations. Hooker claims—and it may be true—that there are other locations where it would be economically desirable to convert from the Mathieson or Solvay type of operation to the Rapson type of operation. To the extent that this is true, this would represent an area in which Hooker could profitably operate from a service standpoint where we could not.

Q. Leaving Hooker aside for the purpose of this ques- [fol. 2434] tion, would you then say that a newcomer entering the sodium chlorate field hereafter would find itself on a par in its ability to make sales of sodium chlorate, on a par with other competitors in the industry, apart from Hooker?

A. Yes, I believe this is essentially true.

Q. Is it your view, sir, that the advantage which Olin has heretofore had in its ability to aid companies in the installation of chlorine dioxide generators is no longer a material advantage in making sodium chlorate sales?

A. That is my opinion. I think it might be expressed in the question, "What have you done for us recently?" Now you cannot live on one thing forever.

Q. Assuming that Pennsalt should become a producer of sodium chlorate in the southeastern part of the United

States, do you know of any disadvantage which Pennsalt might suffer in its ability to make sodium chlorate sales in competition with the existing industry?

A. I believe their principal disadvantage would be that they were coming into a market which was being well serviced by present suppliers.

Q. Would their disadvantage in this respect be any [fol. 2435] different from any other newcomer in the industry? If any new company should now enter would it be subject to the same disadvantage?

A. I would think so.

Q. Prior to the time that Pennsalt and Olin decided to enter into the Penn-Olin sodium chlorate venture, do you know of any reason why Pennsalt would have been at a disadvantage in its ability to enter the business alone, from a sales point of view in the southeastern part of the United States?

A. I can't think of any particular disadvantage, no.

Q. Would you think that Pennsalt's ability to have entered the business alone at that time was approximately the same as Olin's ability?

A. I would say that their ability to do this would be somewhat——

Let me rephrase that by saying that any increased difficulty which they might have anticipated would be due to the fact that they did not have an existing sales organization in the south and southeast area. We have a long history of serving the pulp and paper industry in that [fol. 2436] area. They do not.

Q. But apart from the existence of a sales force which any newcomer would have to develop in this industry, you know of no other disadvantage which Pennsalt or any other new producer might have suffered in entering the business in the beginning of 1960?

A. No serious disadvantage; no.

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[fol. 2437] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 412

Civil Action No. 2282

UNITED STATES OF AMERICA, Plaintiff,

v.

PENN-OLIN CHEMICAL COMPANY, OLIN MATHIESON CHEMICAL CORPORATION AND PENNSALT CHEMICALS CORPORATION, Defendants.

Sodium Chlorate Data Stipulation

Plaintiff and defendants hereby stipulate, solely for the purpose of this case and for no other, and without waiving objections as to relevancy, that competent witnesses, if called by plaintiff or defendants, would testify that the sodium chlorate sales, production, capacity, and shipment data of American Potash and Chemical Corporation, Hooker Chemical Corporation, Pennsalt Chemicals Corporation, and Penn-Olin Chemical Company are accurately set forth in the following sodium chlorate data tables:

SC Data Table

1. Sodium Chlorate ($NaClO_3$) Sales by the Domestic Commercial Producers, 1957-1960 (Short Tons).
2. Sodium Chlorate ($NaClO_3$) Production for the Domestic Commercial Producers, 1957-1960 (Short Tons).
3. Sodium Chlorate ($NaClO_3$) Plant Production Capacity for the Domestic Commercial Producers Showing the Tonnage of All Plants and the Percentage of Each to the Total Industry (Short Tons).
4. Relationship Between Capacity, Production and Shipments of Sodium Chlorate ($NaClO_3$) for the Three Domestic Commercial Producers Each Year 1957 through 1960.
5. Production of Sodium Chlorate West of the Rockies[a] and East of the Rockies[b] by Three Domestic Commercial Producers 1959-1960 (Short Tons).

6. Production of Sodium Chlorate West of the Rockies [a] and East of the Rockies [b] by Three Domestic Commercial Producers 1957-1958 (Short Tons).

[fol. 2438] 7. Sodium Chlorate Plant Capacity for the Domestic Commercial Producers, West of the Rockies and East of the Rockies, 1961 (Short Tons).

8. Sodium Chlorate Plant Capacity for the Three Domestic Commercial Producers, West of the Rockies and East of the Rockies, 1959-1960 (Short Tons).

9. American Potash and Chemical Corporation and Hooker Chemical Corporation 1960 Sodium Chlorate Shipments by States (In Short Tons).

Daniel J. Freed, Attorney for the Plaintiff, United States of America, Wm. Potter, Attorney for the Defendant, Penn-Olin Chemical Company, Cravath, Levant & Moore, Attorney for the Defendant, Olin Mathieson Chemical Corporation, H. Francis DeLone, Attorney for the Defendant, Pennsalt Chemicals Corporation.

November 6th, 1961.

[fol. 24391]

Sodium Chlorate Data Table No. 1

Sodium Chlorate ($NaClO_3$) Sales by the Domestic Commercial Producers, 1957-1960

(Short Tons)

Producer	1960 Tons	1960 Percent of Total	1959 Tons	1959 Percent of Total	1958 Tons	1958 Percent of Total	1957 Tons	1957 Percent of Total
Hooker Chemical Corp.	37,559	45.8	33,991	48.1	29,541	50.7	22,128	47.8
American Potash & Chemical Corp.	29,173	35.6	25,655	36.3	18,629	32.0	15,872	34.2
Pennsalt Chemicals Corp.	15,195	18.6	11,067	15.6	10,052	17.3	8,332	18.0
Total For The Three Producers	81,927	100.0	70,713	100.0	58,222	100.0	46,332	100.0

Source: Sodium Chlorate Data Table No. 9.
General Stipulations (Set I, PX 414 and Set II, DX 48).

[fol. 2440]

Sodium Chlorate Data Table No. 2

Sodium Chlorate ($NaClO_3$) Production for the Domestic Commercial Producers, 1957-1960

(Short Tons)

Producer	1960 Tons	1960 Percent of U.S. Total	1959 Tons	1959 Percent of U.S. Total	1958 Tons	1958 Percent of U.S. Total	1957 Tons	1957 Percent of U.S. Total
Hooker Chemical Corp.	39,284	43.1	37,150	42.1	27,740	41.2	24,205	40.9
American Potash & Chemical Corp.	35,588	39.0	38,720	43.9	21,707	32.3	23,425	39.6
Pennsalt Chemicals Corp.	17,028	18.7	12,384	14.0	12,153	18.1	8,431	14.3
All Other Producers	—	—	[b]	—	5,649	8.4	3,081	5.2
Total U. S. Production	91,184 [a]	100.8	88,300	100.0	67,249	100.0	59,142	100.0

[a] Preliminary figure; quantity reported by the Bureau of the Census is less than the tonnage furnished the Antitrust Division, Department of Justice by the three producers.

[b] Less than 50 tons.

Sources: For the U.S. total production—Current Industrial Reports (formerly Facts For Industry) Series M 28 A Bureau of the Census, United States Department of Commerce.

Letters of November 1, 1960 and June 30, 1961 to the Antitrust Division from Ansley Wilcox, 2nd Vice-President and General Counsel, Hooker Chemical Corporation.

Letters of October 26, 1960 and July 5, 1961 to the Antitrust Division from R. B. Coons and R. J. Hefler, Vice-Presidents, American Potash and Chemical Corp.

Letter of September 14, 1960 to the Antitrust Division from Robert V. Massey, Jr. of Barnes, Dechert, Price, Myers and Rhoads, and answers to Plaintiff's Interrogatory No. 81, Set V.

[fol. 2441] Sodium Chlorate Data Table No. 3

Sodium Chlorate ($NaClO_3$) Plant Production Capacity for the Domestic Commercial Producers Showing the Tonnage of All Plants and the Percentage of Each to the Total Industry

(Short Tons)

	1961		1960		1959		1958		1957	
	Tons	Percent of Total	Tons	Percent of Total	Tons	Percent of Total	Tons	Percent of Total	Tons	Percent of Total
Hooker Chemical Corp.	46,000	33.2	50,000	46.5	41,150	44.6	33,340	46.5	29,435	45.8
Niagara Falls, N. Y.	14,000	10.1	18,000	16.8	12,000	13.0	12,000	16.7	12,000	18.7
Columbus, Miss.	32,000	23.1	32,000	29.8	29,150	31.6	21,340	29.8	17,435	27.1
American Potash and Chemical Corp.	50,500	36.5	42,000	39.1	39,000	42.2	27,000	37.7	27,000	42.0
Henderson, Nev.[a]	28,000	20.2	27,000	25.1	27,000	29.2	27,000	37.7	27,000	42.0
Aberdeen, Miss.	22,500	16.3	15,000[b]	14.0	12,000	13.0	—	—	—	—
Pennsalt Chemicals Corp.	15,434	11.1	15,434	14.4	12,212	13.2	11,367	15.9	7,848	12.2
Portland, Ore.	15,434	11.1	15,434	14.4	12,212	13.2	11,367	15.9	7,848	12.2
Penn-Olin Chemical Corp.	26,500	19.1	—	—	—	—	—	—	—	—
Calvert, Ky.	26,500	19.1	—	—	—	—	—	—	—	—
Total For All Producers	138,434	100.0	107,434	100.0	92,362	100.0	71,707	100.0	64,283	100.0

[a] Including Navy-owned cells, with a capacity of approximately 8,300 tons annually.

[b] Capacity increased to 22,500 tons in December 1960.

Source: Letters of November 1, 1960 and August 25, 1961 to Antitrust Division from Ansley Wilcox, 2nd Vice President and General Counsel of Hooker Chemical Corp.

Letters of October 26, 1960 and August 24, 1961 to the Antitrust Division from R. J. Hefler, and R. B. Coons, Vice-Presidents of American Potash and Chemical Corp.

Letter of September 14, 1960 to the Antitrust Division from Robert V. Massey, Jr of Barnes, Dechert, Price, Myers and Rhoads.

[fol. 2442]

Sodium Chlorate Data Table No. 5

Production of Sodium Chlorate West of the Rockies[a] and East of the Rockies[b] by Three Domestic Commercial Producers 1959-1960

(Short Tons)

	West		East		Total	
	Tons	Percent of Total	Tons	Percent of Total	Tons	Percent of Total
	1960					
Pennsalt Chemicals Corp.	17,028	45.7	—	—	17,028	18.5
Hooker Chemical Corp.	—	—	39,284	71.9	39,284	42.7
American Potash and Chemical Corp.	20,228	54.3	15,360	28.1	35,588	38.7
Total	37,256	100.0	54,644	100.0	91,900	100.0
	1959					
Pennsalt Chemicals Corp.	12,384	31.7	—	—	12,384	14.0
Hooker Chemical Corp.	—	—	37,150	75.5	37,150	42.1
American Potash and Chemical Corp.	26,633	68.3	12,087	24.5	38,720	43.9
Total	39,017	100.0	49,237	100.0	88,254	100.0

[a] Plants West of the Rockies are located in Nevada and Oregon.

[b] Plants East of the Rockies are located in Mississippi and New York.

Source: Letters of November 1, 1960 and June 30, 1961 to the Antitrust Division from Ansley Wilcox, 2nd Vice-President and General Counsel, Hooker Chemical Corporation.

Letters of October 26, 1960 and July 5, 1961 to the Antitrust Division from R. B. Coons and R. J. Hefler, Vice-Presidents, American Potash and Chemical Corp.

Letter of September 14, 1960 to the Antitrust Division from Robert V. Massey, Jr. of Barnes, Dechert, Price, Myers and Rhoads, and answers to Plaintiff's Interrogatory No. 81, Set V.

[fol. 2443] Sodium Chlorate Data Table No. 6

Production of Sodium Chlorate West of the Rockies[a] and East of the Rockies[b] by Three Domestic Commercial Producers 1957-1958

(Short Tons)

	West		East		Total	
	Tons	Percent of Total	Tons	Percent of Total	Tons	Percent of Total
	1958					
Pennsalt Chemicals Corp.	12,153	35.9	—	—	12,153	19.7
Hooker Chemical Corp.	—	—	27,740	100.0	27,740	45.0
American Potash and Chemical Corp.	21,707	64.1	—	—	21,707	35.2
Total	33,860	100.0	27,740	100.0	61,600	100.0
	1957					
Pennsalt Chemicals Corp.	8,431	26.5	—	—	8,431	15.0
Hooker Chemical Corp.	—	—	24,205	100.0	24,205	43.2
American Potash and Chemical Corp.	23,425	73.5	—	—	23,425	41.8
Total	31,856	100.0	24,205	100.0	56,061	100.0

[a] Plants West of the Rockies are located in Nevada and Oregon.

[b] Plants East of the Rockies are located in Mississippi and New York.

Source: Letters of November 1, 1960 and June 30, 1961 to the Antitrust Division from Ansley Wilcox, 2nd Vice-President and General Counsel, Hooker Chemical Corporation.

Letters of October 26, 1960 and July 5, 1961 to the Antitrust Division from R. B. Coons and R. J. Hefler, Vice-Presidents, American Potash and Chemical Corp.

Letter of September 14, 1960 to the Antitrust Division from Robert V. Massey, Jr. of Barnes, Dechert, Price, Myers and Rhoads, and answers to Plaintiff's Interrogatory No. 81, Set V.

[fol. 2444] Sodium Chlorate Data Table No. 7

Sodium Chlorate Plant Capacity for the Domestic Commercial Producers, West of the Rockies and East of the Rockies, 1961

(Short Tons)

	West		East		Total	
	Tons	Percent of Total	Tons	Percent of Total	Tons	Percent of Total
*Pennsalt Chemicals Corp.	15,434	35.5	—	—	15,434	11.1
Penn-Olin Chemical Corp.	—	—	26,500	27.9	26,500	19.1
Hooker Chemical Corp.	—	—	46,000	48.4	46,000	33.2
American Potash and Chemical Corp.**	28,000	64.5	22,500	23.7	50,500	36.5
Total	43,434	100.0	95,000	100.0	138,434	100.0

Note: Penn-Olin Chemical Corp. plant at Calvert City, Kentucky, started production in September 1961. Plants West of the Rockies are located in Nevada and Oregon. Plants East of the Rockies are located in Mississippi, Kentucky and New York.

* Capacity for 1960.

** Including Navy-owned cells, with a capacity of approximately 8,300 tons annually.

Source: Letter of August 25, 1961 to the Antitrust Division from Ansley Wilcox, 2nd Vice-President and General Counsel of Hooker Chemical Corp.

Letter of August 24, 1961 to the Antitrust Division from R. B. Coons, Vice-President of American Potash and Chemical Corp.

[fol. 2445] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 413

Civil Action No. 2282

UNITED STATES OF AMERICA, Plaintiff,

v.

PENN-OLIN CHEMICAL COMPANY, OLIN MATHIESON CHEMICAL CORPORATION AND PENNSALT CHEMICALS CORPORATION, Defendants.

Nonchlorate Stipulation

Plaintiff has raised the issue whether competition between Olin and Pennsalt in chemicals other than sodium chlorate and its derivatives is relevant to the validity of the joint venture.

Without waiving any objection as to the relevancy of that issue to this case, or of the following data to any issue in this case, defendants hereby stipulate with plaintiff, solely for the purpose of this case and for no other, that:

(1) Competent witnesses, if called by the plaintiff, would testify to the following:

(a) Olin and Pennsalt each produce and sell in commerce in the United States the following seven chemicals: ammonia, calcium hypochlorite, caustic soda, chlorine, hydrochloric acid, hydrofluoric acid and sulphuric acid. Competition, if any, in the sale of hydrochloric acid and sulphuric acid is de minimus. Olin and Pennsalt compete in the sale of five chemicals: ammonia, calcium hypochlorite, caustic soda, chlorine and hydrofluoric acid.

(b) In the case of calcium hypochlorite the relevant market is nationwide and the competition between Olin and Pennsalt in the sale of calcium hypochlorite is substantial.

[fol. 2446] (c) During the year 1960 Olin and Pennsalt both sold the following products in the states indicated in approximately the dollar volumes indicated:

	Pennsalt	Olin
Caustic Soda: Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia, Wisconsin, California.	$3,700,000	$18,670,000
Chlorine: Delaware, Illinois, Indiana, Iowa, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Virginia, West Virginia, Wisconsin.	$2,800,000	$ 4,370,000
Hydrofluoric Acid: Florida, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, California, Oregon.	$3,520,000	$ 2,210,000
Calcium Hypochlorite: Alabama, Arizona, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, Wisconsin, Washington, Idaho, California, New Mexico, Oregon, Utah.	$2,100,000	$ 4,750,000
Anhydrous Ammonia: Delaware, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Virginia, West Virginia, Wisconsin.	$1,620,000	$ 6,200,000
Aqueous Ammonia: Indiana, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania.	$ 105,000	$ 149,000

[fol. 2447] (d) The sales of Olin, Pennsalt and all producers of the particular chemicals shown for the years indicated are as shown in Appendix A attached hereto.

(e) The following industries use the chemicals set forth below:

	Ammonia	Caustic Soda	Chlorine	Calcium Hypochlorite	Hydrofluoric Acid
Chemical and Process Industries	x	x	x		x
Soap and Chemical Specialties Fields	x	x	x	x	
Metal Producing & Metal Working	x	x			x
Pulp and Paper Production	x	x	x	x	
Textile Mills, Laundries, Cleaners		x	x		
For Food Plants	x	x			
Water Treatment and Sewage Disposal	x		x	x	
Military Installations, Defense Uses and Atomic Energy Program	x	x	x	x	x
Petroleum and Natural Gases Industries	x	x	x	x	x
Glass and Ceramic Industries					x

Source: Pennsalt's 1956 Annual Report, pp. 19-23.

(f) Pennsalt produces the following chemicals at each of the plant locations shown:

	Wyandotte, Michigan	Calvert City, Kentucky	Portland, Oregon	Tacoma, Washington
Ammonia	x		x	
Calcium Hypochlorite	x			
Caustic Soda	x	x	x	x
Chlorine	x	x	x	x
Hydrofluori Acid		x		

[fol. 2448] (2) The presence or absence of substantial competition between Olin and Pennsalt with respect to production and sale of ammonia, caustic soda, chlorine, and hydrofluoric acid, or of the existence of any relevant market for such chemicals, is not relevant to the determination of any issue in this case.

Daniel J. Freed, Attorney for the Plaintiff, United States of America, Wm. Potter, Attorney for the Defendant, Penn-Olin Chemical Company, Cravath, Levant & Moore, Attorney for the Defendant, Olin Mathieson Chemical Corporation, H. Francis DeLone, Attorney for the Defendant, Pennsalt Chemicals Corporation.

Approved:

——, ——, United States District Judge.

November 6, 1961.

[fol. 2449]

Appendix A

Sales of Five Nonchlorate Chemicals by Pennsalt Chemicals Corp. and Olin-Mathieson Chemical Corp. Compared With Commercial Sales for All United States Primary Producers

	Year	All Producers	Total For PS & OM		Pennsalt		Olin	
		$	$	%	$	%	$	%
Ammonia:								
Anhydrous	1959	124,153,000	9,800,509	7.9	2,156,509	1.7	7,644,000	6.2
	1960	137,966,000	10,611,135	7.7	1,716,135	1.2	8,895,000	6.4
Aqueous	1959	2,853,000	629,113	22.1	362,271	12.7	266,842	9.4
	1960	2,731,000	547,324	20.0	298,067	11.0	248,257	9.1
Calcium Hypochlorite	1959	7,296,000	6,479,493	88.8	1,929,493	26.4	4,550,000	62.4
	1960	9,042,000	6,928,143	76.6	2,124,840	23.5	4,803,303	53.1
Caustic Soda	1958	166,868,000	28,185,495	16.9	8,425,495	5.0	19,760,000	11.8
	1960	184,472,000	28,680,808	15.5	9,431,808	5.1	19,249,000	10.4
Chlorine	1958	104,989,000	18,674,990	17.8	9,826,129	9.4	8,858,861	8.4
	1960	129,565,000	22,151,521	17.1	11,232,521	8.7	10,919,000	8.4
Hydrofluoric Acid	1959	21,580,000	6,771,456	31.4	4,156,579	19.3	2,614,877	12.1
	1960	22,334,000	5,923,053	26.5	3,594,517	16.1	2,328,536	10.4

[1] Sources: Figures for "All Producers Sales" are from the Bureau of the Census and represent commercial shipments, except for calcium hypochlorite and hydrofluoric acid where the shipments include interplant transfers.
The 1958 caustic soda total includes commercial shipment figures added to interplant transfer figures.
Pennsalt Sales data furnished by Pennsalt letter dated 6/22/61.
Olin Sales data furnished by Olin letter dated 6/22/61.

[fol. 2450] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 414

Civil Action No. 2282

UNITED STATES OF AMERICA, Plaintiff,

v.

PENN-OLIN CHEMICAL COMPANY, OLIN MATHIESON CHEMICAL CORPORATION AND PENNSALT CHEMICALS CORPORATION, Defendants.

General Stipulations Set I

Plaintiff and defendants hereby stipulate, solely for the purpose of this case and for no other, and without waiving objections as to relevancy, that competent witnesses, if called by plaintiff or defendants, would testify to the following:

* * * * * * *

4. Shipments of sodium chlorate by Pennsalt in years prior to 1958, and in the years 1958-1960, on behalf of Olin are as set forth in attached Stipulation Table 4.

5. Hooker Chemical Corporation sold to Olin and shipped to Olin's plant at Niagara Falls for consumption by Olin sodium chlorate in the quantities indicated opposite each year as follows:

[fol. 2451]

1957	1300 tons
1958	1100 tons
1959	1300 tons
1960	1350 tons
1961 (6 mos.)	560 tons

6. In January 1961, Olin salesmen using Olin invoices sold sodium chlorate to the following purchasers and in the quantities and dollar volumes indicated. It was contemplated by Olin and Pennsalt that, in the event Penn-Olin became an operating joint venture, such sales would be treated as having been made for Penn-Olin's account:

International Paper Co.	210.63 tons	$33,832.69
Brunswick Pulp & Paper Co.	58.81 tons	9,586.03

7. In February 1961, Olin salesmen using Olin invoices sold sodium chlorate to the following purchasers and in the quantities and dollar volumes indicated. It was contemplated by Olin and Pennsalt that, in the event Penn-Olin became an operating joint venture, such sales would be treated as having been made for Penn-Olin's account:

International Paper Co.	431.86 tons	$66,218.69
Brunswick Pulp & Paper Co.	109.28 tons	17,812.64
West Virginia Pulp & Paper Co.	106.40 tons	15,439.58
St. Mary's Kraft Corp.	52.34 tons	8,531.42
Scott Paper Co.	44.10 tons	7,008.30

8. Olin bought from American Potash for resale to the following companies and instructed American Potash to deliver from Henderson, Nevada, to the following locations, and American Potash shipped to those locations on the dates listed below, the tons of sodium chlorate set opposite each name. It has been contemplated by Olin and Pennsalt that, in the event Penn-Olin became an operating joint venture, such sales by Olin would be for Penn-Olin's account:

Crossett Paper Mills		
Crossett, Arkansas	March 28, 1961	45 tons
International Paper Co.		
Natchez, Mississippi	December 29, 1960	50 tons
Pine Bluff, Arkansas	January 17, 1961	100 tons
Moss Point, Mississippi	January 31, 1961	50 tons
Pine Bluff, Arkansas	March 2, 1961	50 tons
Pine Bluff, Arkansas	March 22, 1961	50 tons

• • • • • • • •

[fol. 2452] 10. Before December 1957 Olin never solicited sales of or sold sodium chlorate.

• • • • • • •

12. Sales in the United States of sodium chlorate produced outside the United States have not been substantial during the last five years.

These are as follows (FT 110, Dept. of Commerce):

1956	892 tons
1957	335 tons
1958	1322 tons
1959	2596 tons
1960	4152 tons

13. At present no company other than Pennsalt, Hooker and American Potash produces sodium chlorate in the United States for sale in the United States. However, in July 1961 Pittsburgh Plate Glass Company has announced that it is constructing a sodium chlorate plant which is to be completed about September 1962. In addition, Pacific Engineering & Production Company of Nevada announced in August 1961 that it plans to construct sodium chlorate production facilities.

• • • • • • •

[fol. 2453] 19. The net sales and operating revenues of Olin's Chemicals Division during 1957-1960 were approximately:

1957	$217,000,000
1958	207,200,000
1959	218,100,000
1960	216,900,000

• • • • • • •

[fol. 2454] 24. According to its annual reports, the total assets of Hooker Chemical Corporation during 1956-1960 were approximately:

1956	$122,900,000
1957	134,100,000
1958	151,000,000
1959	184,000,000
1960	187,300,000

25. According to its annual reports, the net sales of Hooker Chemical Corporation during 1956-1960 were approximately:

1956	$110,000,000
1957	107,900,000
1958	125,500,000
1959	149,800,000
1960	149,800,000

26. According to its annual reports, the total assets of American Potash & Chemical Corporation during 1956-1960 were approximately:

1956	$64,300,000
1957	65,300,000
1958	74,600,000
1959	72,600,000

27. According to its annual reports, the net sales of American Potash & Chemical Corporation during 1956-1960 were approximately:

1956	$41,800,000
1957	42,800,000
1958	47,900,000
1959	54,600,000
1960	50,500,000

28. According to its 1960 Annual Report, the total assets of Allied Chemical Corporation during 1956-1960 were approximately:

1956	$742,000,000
1957	756,500,000
1958	748,300,000
1959	785,300,000
1960	800,900,000

[fol. 2455] 29. According to its 1960 Annual Report, the sales and operating revenues of Allied Chemical Corporation during 1956-1960 were approximately:

1956	$668,800,000
1957	683,100,000
1958	635,500,000
1959	719,700,000
1960	765,800,000

30. According to its 1960 Annual Report, the total assets of Pittsburgh Plate Glass Company during 1956-1960 were approximately:

1956	$555,300,000
1957	574,800,000
1958	561,400,000
1959	619,300,000
1960	624,800,000

31. According to its 1960 Annual Report, the net sales of Pittsburgh Plate Glass Company during 1956-1960 were approximately:

1956	$596,600,000
1957	620,800,000
1958	513,600,000
1959	606,900,000
1960	628,000,000

32. Between 1955 and 1960 Pennsalt did not apply to any bank or other lending institution to borrow funds to finance any sodium chlorate venture.

33. Between 1955 and 1960 Olin did not apply to any bank or other lending institution to borrow funds to finance any sodium chlorate venture.

• • • • • • •

[fol. 2456] 35. The domestic joint venture to which Olin Industries, Inc. was a party was as follows:

Joint Company	Other Parent	Year Organized	Principal Product
Matholin Corporation (a)	Mathieson Chemical Co.	1953	hydrazine

(a) Due to patent problems and delays, company was never activated. It was liquidated into Olin Mathieson in 1954.

[fol. 2457] 37. The domestic joint venture to which Mathieson Chemical Corporation was a party was as follows:

Joint Company	Other Parent	Year Organized	Principal Product
Matholin Corporation (a)	Olin Industries, Inc.	1953	hydrazine

(a) Due to patent problems and delays, company was never activated. It was liquidated into Olin Mathieson in 1954.

[fol. 2458] 38. On August 31, 1954, Olin Industries, Inc. merged with Mathieson Chemical Corporation to form Olin Mathieson Chemical Corporation. Sales and assets of the merging companies in 1953 were:

	Sales	Assets
Olin Industries	$228,250,440	$232,512,305
Mathieson	243,575,544	339,261,236

[fol. 2459] 39. The domestic acquisitions and mergers of Olin Mathieson Chemical Corporation to date have been as follows:

Acquired Company	Year Acquired or Merged	Principal Product	Approximate Purchase Price
Calabama Chemical Co. Huntsville, Ala.	1954	manufacture of DDT	$ 580,000
Marquardt Aircraft Corp.	1954	ramjet aircraft engines	(25% of stock purchased, all of which was disposed of prior to 1961)
Hunter Engineering Corporation Riverside, California	1954	aluminum sheet, bars machinery	(51% of stock acquired, all of which was disposed of prior to 1961)
Blockson Chemical Co. Joliet, Illinois	1955	sodium phosphates	$57,500,000
Brown Paper Mill Co., Inc. (a)	1955	465,000 acres of timberlands—pulp—paper Kraft paper products	$88,000,000
Mississippi Aluminum Corp. Gulfport, Mississippi	1956	aluminum extrusions	$ 525,000
Southern Electrical Co. Chattanooga, Tennessee	1957	aluminum wire and cable	$ 6,500,000
Almetco, Inc.	58-1959	aluminum extrusions	$ 2,000,000

(a) Acquisition also included four related converter companies, Brown Paper Industries, Inc., Brown Containe. Co., Inc., The Negley Bag and Paper Co., and the Krafco Container Corporation, all owned by the same family who owned Brown Paper Mill Co., Inc. In 1958, approximately 211,000 acres of timberland were sold.

[fol. 2460] 40. The domestic joint ventures to which Olin Mathieson has been a party are as follows:

Joint Company	Other Parent	Year Organized	Principal Product	Value of Facility
Ormet Corporation (and related subsidiaries)	Revere Copper & Brass, Incorporated	1956	aluminum	$250,000,000
SunOlin Chemical Co. (a)	Sun Oil Company	1958	urea	$ 7,000,000

(a) SunOlin is constructing an ethylene and ethylene oxide plant.

[fol. 2461] 41. The domestic acquisitions and mergers of Pennsalt since 1951 are:

Acquired Company	Year Acquired or Merged	Principal Product	Approximate Purchase Price
Sharples Chemicals, Inc. Riverview, Michigan	1951-1952	synthetic chemicals	$5,400,000
Gilron Products Co. Cleveland, Ohio	1954	drawing compound and metal cleaners	$ 127,000
I. P. Thomas & Son Co. (a)	1955	fertilizer, sulphuric acid, phosphoric acid	$1,150,000
Index Chemical Co. (b) Houston, Texas	1955	organic sulphur	$ 490,000
Delco Chemicals, Inc. Los Angeles, Calif.	1956	specialty cleaning and paint stripping compounds	$1,900,000

(a) Sold to Dixon Chemical Industries, Inc. in 1958-1959.
(b) An additional 20% interest was acquired in 1959 for $387,450.

[fol. 2462] 42. The domestic joint ventures to which Pennsalt has been a party are:

Joint Company	Other parent	Year Organized	Principal Product
Solar Salt Company	Hooker Chemical Co. (a)	1951	salt

(a) Twenty-three individuals also own Class A common stock of Solar Salt Company.

[fol. 2463] 43. Sodium chlorate of like purity is a fungible commodity, and all sodium chlorate produced for sale by any domestic producer is reasonably interchangeable with that of any other domestic producer.

44. Sodium chlorate constitutes a single line of commerce within the meaning of Section 7 of the Clayton Act.

45. Olin's dollar sales of all products in 1960 to the companies listed beow, all of which are either actual or potential sodium chlorate consumers, or affiliates of such companies (see Appendix of PX 274) totalled $30,884,000. Olin's purchases from those companies marked with an "x" totalled $13,740,000.

American Can Company	x
Bowater's Corporation of North America Ltd.	
Champion Paper & Fibre Company	x
Container Corporation of America	x
Continental Can Corporation	x
Coosa River Newsprint Company	x
Crossett Company	x
Crown Zellerbach Corporation	x

Gilman Paper Corporation	x
Glatfelter Company, P. H.	
Gulf States Paper Corporation	x
Hudson Pulp & Paper Corporation	x
International Paper Company	x
Mead Corporation, The	x
Nalco Chemical Company	x
Nekoosa-Edwards Paper Company	
Oxford Paper Company	
Packaging Corporation of America	x
Penobscot Chemical Fibre Company	
Procter & Gamble Company	x
Rayonier Inc.	x
Riegel Paper Corporation	x
Scott Paper Company	x
Standard Packaging Corporation	x
St. Regis Paper Company	x
Thilmany Pulp & Paper Company	
Time, Inc.	x
Union Bag-Camp Paper Corporation	x
Waldorf Paper Products Company	
West Virginia Pulp & Paper Company	x

[fol. 2464] 46. Pennsalt's dollar sales of all products in 1960 to the companies listed below, all of which are either actual or potential sodium chlorate consumers, or affiliates of such companies (See Appendix of PX 274) totalled $6,625,996.

Packaging Corporation of America (including American Boxboard Co. Inc., and Continental Paper Products Co.)
American Can Co. (Marathon Division)
Scott Paper Co. (including Coos Bay Pulp Corp.)
The Procter & Gamble Co. (including Buckeye Cellulose Corp., and Charmin Paper Mills)
Crown Zellerbach Corp.
Container Corporation of America
Continental Can Corp.
International Paper Co.
St. Regis Paper Co.
Union Bag-Camp Paper Corp.

West Virginia Pulp & Paper Co.
Nalco Chemical Co. (including Visco Products Co.)
Crossett Paper Mills
Glatfelter, P. H. Co.
Gulf States Paper Corp.
Nekoosa-Edwards Paper Co.
Rayonier, Inc.
Riegel Textile Corp.
Waldorf Paper Products
Allied Chemical Corp.
Chipman Chemical Co.
Olin Mathieson Chemical Corp.

Pennsalt's purchases in 1960 from such companies, listed below, were $1,249,747.

American Can Company (including the Marathon Division)
Crown Zellerbach Corp. (including the Gaylord Container Division)
Container Corporation of America
Continental Can Corporation (including the Robt. Gair Division)
St. Regis Paper Co. (including Rathborne Hair & Ridgeway Box Co.)
Union Bag-Camp Paper Corp.
West Virginia Pulp & Paper Co.
Crossett Paper Mills
Olin Mathieson Chemical Corp.
Chipman Chemical Co.
Hudson Pulp & Paper
Allied Chemical Corp.

(Gen'l Chem & Solvay Divs.)

[fol. 2465] Daniel J. Freed, Attorney for the Plaintiff, United States of America, Wm. Potter, Attorney for the Defendant, Penn-Olin Chemical Company, Cravath, Levant & Moore, Attorney for the Defendant, Olin Mathieson Chemical Corporation, H. Francis DeLone, Attorney for the Defendant, Pennsalt Chemicals Corporation.

[fol. 2466] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 415

Inter-Office Correspondence

Los Angeles, California

February 12, 1957.

To: Board of Directors
Attention: Messrs. L. L. Austin, R. B. Coons, D. S. Dinsmoor, W. S. Glazier, W. J. Hutchinson, W. P. Scott, R. E. Vogel

Copy to: PSD:LA
WJFF:LA
JCS:LA
GSW:LA
RJH:LA
BMH:LA

Subject: New Sodium Chlorate Plant in Mississippi

We propose to build a plant near Aberdeen, Mississippi for the initial production of 15,000 tons per year of sodium chlorate for delivery to present and potential Eastern customers. The estimated cost of this facility is $5,000,000, and the total investment, including working capital, is estimated at $5,500,000. On the basis of the present market price of sodium chlorate the estimated return on the total capital investment is 8.0%.

Market

We expect to use 27,000 tons equivalent sodium chlorate in 1957 (including perchlorates), of which 14,500 tons will be shipped as sodium chlorate to the East and Southeast. The major portion of our Eastern sales goes to pulp mills which use the Solvay chlorine dioxide process for bleaching pulp. The balance is sold for weed killing. Sales of chlorate for the former are made through the Solvay Division of Allied Chemical & Dye Corporation, to whom we pay a 5% commission as sales agents. Solvay has advised us of new pulp installations being built or planned which, in their

opinion, will conservatively require 9,000-10,000 tons additional chlorate by 1960-1961. Most of this expansion will be in the East. Solvay's principal interest in this business is to sell various chemicals manufactured by them and used in the process they furnish. To do this, their customers need to be assured of an adequate supply of sodium chlorate.

We also anticipate a steady increase in the requirement of sodium chlorate for conversion to perchlorates. Figures based on the programs discussed with our customers in this field indicate an increase of up to 6,500 tons of ammonium perchlorate by 1960-1961, and there is some reason to anticipate that the increase may go substantially beyond this figure. The annual capacity of the ammonium perchlorate facility at Henderson is estimated at 10,000 tons. It takes a little over a ton of sodium chlorate to make a ton of ammonium perchlorate.

The present sodium chlorate capacity at Henderson is around 27,000 tons per year. Hence, if we are to obtain any of the additional chlorate and perchlorate business that is in sight, we must have new facilities available not later than the summer of 1958.

[fol. 2467] Location

On sodium chlorate shipments from Henderson to the East we have a heavy freight equalization (approximately $25 per ton) against material supplied by Hooker (formerly Oldbury) either from their Niagara Falls plant or the relatively new facility at Columbus, Mississippi. Detail study of present and potential Eastern customers developed that the optimum site from the standpoint of freight was some point in the northern Alabama—northern Mississippi area. This area is also served with power by TVA which is the lowest cost still available in any Eastern area (4.5 mills). Field investigation of available sites has narrowed our choice to a 586 acre site which we have under option for $75,000 ($125 per acre) at Aberdeen, Mississippi. Our studies show that this site should be suitable on all counts and give us somewhat lower total costs than sites examined along the Tennessee River.

Plant Design

We have spent considerable engineering time examining the various elements of the sodium chlorate process now used at Henderson and endeavoring to determine whether either capital or operating cost advantages might be gained from purchase of equipment design or operating information from some outside source.

E. C. Krebs of Krebs & Cie was retained as a consultant and provided valuable information. It was the conclusion of Mr. Dinsmoor's project engineering group, however, that the possible advantages of the installation proposed by Krebs or a modified cell design which was available from Pennsylvania Salt Manufacturing Company were not sufficient to justify the additional costs involved or the risk in adopting a process modification with which we have had no direct experience.

We consequently propose to use in the new plant the Schumacher cell in use at Henderson but with certain mechanical improvements. The method of operation and recovery process will, however, be somewhat different from the Henderson procedure in order to take advantage of certain conditions in Mississippi, particularly the lower cost of fuel and the adequate supply of low temperature cooling water.

In making the final layout, care will be taken to make it possible to add 50% additional capacity at some future date without any major disruption to the presently contemplated installation and buildings. This provision is made because some of the more optimistic estimates of requirements both for pulp bleaching and conversion to perchlorates indicate that such additional capacity might be needed by 1961.

The Hooker Columbus plant had an initial capacity of 12,000 tons in 1954. This was increased to 17,000 tons in 1956, and a further increase to 22,000 tons has been announced recently.

[fol. 2468] Financial Considerations

A preliminary estimate made by C. F. Braun on the latest flowsheet developed by our engineers indicates an approximate cost of $5,000,000. We believe that the definitive estimate based on detailed engineering and quotations will not

exceed this figure, and we have some hope that by further engineering studies the amount may be slightly reduced. Adding to this about $75,000 for the land we need and working capital requirements, we will have a total requirement of approximately $5,500,000. On the basis of present prices and full operation, we estimate earnings after depreciation (15 year life) and income taxes at $437,000 per year, or a return of 8.0%. This is arrived at as follows:

Sale of 15,000 tons at	$155 per ton	$2,325,000
Manufacturing cost	70 per ton	1,050,000
Gross income	85 per ton	$1,275,000
Depreciation	22 per ton	328,000
Profit before income taxes	63 per ton	$ 947,000
Net profit after income tax	29 per ton	$ 437,000

A preliminary estimate with respect to the rate of cash requirements for this project shows a total of $3,000,000 in 1957, of which $2,100,000 will be required during the fourth quarter of the year, $650,000 during the third quarter, and $250,000 during the first six months. The estimate for 1958 calls for $1,500,000 in the first quarter, $800,000 in the second quarter, and the balance of $200,000 in the third quarter.

A cash forecast showing the effect of these requirements on our over-all cash position as of the year-end and September 30, 1958 will be available for the February 18th meeting.

We recognize that there will be an interval of two or three years before we can expect to sell full production of the new plant in addition to full production from the Henderson unit. During this period, however, we can gain some advantage by running the new plant full and reducing the rate at Henderson. This will eliminate some of the freight equalization which would otherwise be paid on tonnage shipped East from Henderson and at the same time reduce the latter plant's requirement of steam derived power which costs us approximately 7 mills per kilowatt hour as against the 4.5 mill TVA rate.

While the return on this investment is not as attractive as some we have proposed, there are a number of factors that must be taken into consideration. In the first place, the present price of chlorate in the East is nearly a cent a pound lower than the Western price. With rising costs

there should be pressure to bring the Eastern price up to the Western level. If such an adjustment is reached it would represent an addition of about 1.9% on the net return on [fol. 2469] the investment, or a total of 9.9%.

The second consideration is that we are the major factor in perchlorates today and the only producer of ammonium perchlorate. We believe that perchlorates are as of today the best available oxidizing agent for use in solid propellant types of missiles. We have a predominant position not only because of our experience with and knowledge of perchlorates, but because we are approaching completion of the development of lead dioxide anodes for the electrochemical conversion of chlorate to perchlorate. The successful completion of this development will remove one of the great stumbling blocks to the unlimited use of perchlorates in propellant mixtures. Hitherto the conversion of chlorates to perchlorates has required platinum anodes, and it has been thought that the limited supply of platinum and, hence, the limit on possible expansion of production might prove a serious deterent to adoption of perchlorates. We now think that there is little question of the successful substitution of the lead dioxide anode which will make possible practically unlimited expansion of perchlorate production in case of emergency.

We feel that the expansion of our perchlorate business will be a sound and profitable venture and that increase in our chlorate capacity, and particularly the establishment of a second manufacturing location, is a prerequisite to growth in the more profitable perchlorate field. If a second ammonium perchlorate facility is required at some later date, it seems logical to suppose the location would be other than at Henderson and, accordingly, if it be Government sponsored, our chances of capitalizing on our know-how and building it would be much better if it were based on a chlorate plant owned by us in the East.

Proceeding with this project will also have a defensive value in our efforts to promote the sale of sodium chlorate. It is the Sales Department's feeling that our position will be considerably strengthened over the years by having a producing plant for this material located at a point where we are on a freight parity with our principal competitor's plant serving the area of greatest current and anticipated

growth for sodium chlorate requirements by the pulp industry. Ideally, we should use the sodium chlorate production at Henderson either for conversion into ammonium and potassium perchlorate and potassium chlorate or for shipment as sodium chlorate to the consuming areas where our competitive position freight-wise is favorable; and to gradually expand the Eastern facility in line with the growth in demand for sodium chlorate in that area whether for use as such or for ultimate manufacture of perchlorates.

It is also envisioned that we may ultimately serve Eastern match company plants with potassium chlorate from Aberdeen, thus saving the current freight equalization of some $40 a ton.

We recommend that the Board approve the sodium chlorate expansion project at its next meeting so that we may proceed without delay on the detailed engineering. Time is [fol. 2470] important, as we must promptly make a firm power contract with TVA in order that they may have the necessary power lines and substation approved and installed by the time our plant should be ready to operate. This is planned for July 1, 1958.

Peter Colefax.

PC:aa

[fol. 2471] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 420

Extract from —Management Committee Meeting No. 103

Date —June 25, 1959

Convened: 9:30 a.m. to 4:00 p.m.

Members Present—Messrs. Clark, Clem, Drake, LaLande, Land, and Willits

Members Absent —Messrs. Collins, McWhirter, and Shanaman

*VII. Ammonium Perchlorate

Mr. Drake said that *Missiles and Rockets* magazine issue of June 1 reported that 2600 minute man units may be produced requiring over 120 million pounds of ammonium perchlorate. This is equal to the three-year output of the total present capacity.

X. Program for Future Growth

G. Chlorate-Perchlorate Completion

This project was dropped from the list because it does not apply to 1960.

[fol. 2472] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 422

Olin Mathieson Chemical Corporation

Date: August 28, 1959.

To: Mr. C. C. Hightower at Baltimore
From: Kennett Lewis at Baltimore
Subject: Sodium Chlorate Production

Copy To: Mr. J. L. Wood,
Mr. E. L. Rice.

Forwarded herewith is the file on Sodium Chlorate. I asked Ed Rice to peruse the subject material and check with Mr. Wood regarding utilities, costs and related items for the Chattanooga location. Joe Wood advised Ed that he had previously reviewed the chlorate information and had no specific comments other than to the effect that the cost estimates appeared to be in order. On the specific question of energy costs, Joe advised that his latest information for the Chattanooga location indicated that the assumed unit costs were "in the ball park."

Ed Rice has tabulated the data and comparison tables which should give a quick rundown.

Specifically with respect to the cost of graphite versus platinum titanium, we wish to point out that the platinum titanium is charged at $70/troy oz. The platinum market today is $78-80/troy oz. A few months ago we purchased 400 troy ozs. at $52/troy oz. This serves to emphasize that the cost of platinum is variable and can be anything up to $90-95/troy oz. Some years ago we paid as high as $100/troy oz. for one purchase. Over a long period of time the platinum price might be assumed as $85-90/troy oz. for new metal.

I checked with Dr. W. C. Gardiner regarding the possibility of recovering spent platinum titanium metal. If it is possible to collect the spent catalyst, the metal could be recovered by refining in much the same manner as spent platinum rhodium catalyst is reclaimed. Dr. Gardiner advised that this aspect had not been investigated, and he

could, therefore, offer no comments as to the feasibility of recovery. It is not known whether spent metal can even be found and collected. It, therefore, appears that more study should be given to the platinum titanium anode picture.

Kennett Lewis.

KL:CA
Enc.
8/28
CCH

When you're finished with the attached 4 Research reports, we have to return them to BHW's file.

[fol. 2473] In United States District Court

Plaintiff's Exhibit 424

Pennsalt Chemicals Established 1850

Subject: Southern Pulp & Paper Manufacturer
Date: April 29, 1960
To: Mr. R. T. Mills
From: Marshall T. Ramstad
Copies To: M32, S25

Industrial Chemicals-West has continued advertising in the subject publication and featuring our sodium chlorate. This advertising was originally aimed at strengthening Pennsalt's relationships with Olin Mathieson who served as the sales outlet for that area.

With the proposed Penn-Olin chlorate plant at Calvert City now anticipated to be in production in 1961, it can be expected that shipments of chlorate from the Portland plant will eventually be discontinued.

This is to inquire whether there has been any thought given to Penn-Olin advertising sodium chlorate in the South and other adjoining market areas in anticipation of the 1961 production.

It would appear to me that this is a matter for discussion. Industrial Chemicals-West could not be expected to bear the full advertising costs for sodium chlorate during this

interim period without some financial participation by Penn-Olin.

We would appreciate any comments you might have on this subject.

M. T. Ramstad.

MTR:es

[fol. 2474] In United States District Court

Plaintiff's Exhibit 426

[Extract]

Financial and Operating Policy Committee
Minutes of Meeting
September 27, 1960

Present: Mr. J. M. Olin, Chairman, Mr. J. W. Hanes, Mr. T. S. Nichols, Mr. S. de J. Osborne.

1. Capital Appropriation Requests

The following capital appropriation requests were approved for recommendation to the Executive Committee at its meeting tomorrow:

Capital Appropriation Request No. 172-001-377C
$3,227,000

Chemicals Division
Penn-Olin Chemical Company Investment
Calvert City, Kentucky

* * * * * * *

[p. 3]

Respectfully submitted, S. de J. Osborne.

SdeJO:JF

[fol. 2475] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 427

Extract from—Appropriations Committee Meeting No. 41
Date—October 14 and November 3, 1960
Members Present—Messrs. Clark, Clem, Drake, LaLande (2nd meeting), Willits and Tuttle
Others Present—Messrs. Istas and McWhirter (1st portion of 1st meeting), Collins

I. ID-001-PO—"Penn-Olin Sodium Chlorate Plant"

1. Investments of $1.5 million each by Olin and Pennsalt respectively had been previously approved by their parent Boards. The review of ID-001-PO by the Appropriations Committee was preliminary to its formal submission to the Penn-Olin Board for approval.
2. The request called for a total investment of $7,257,000, on which there was an average pre-tax return on the total project of 19.5%.
   Since this project had been previously reviewed by various sections in the Company, only a limited review was made at this time. Mr. Drake did ask, however, the reason behind the increase in the project return over that which was estimated previously. Mr. McWhirter said it stemmed from lower capital cost estimates (e.g. less expensive rectification facilities), plus the elimination of all packaging operations.
3. It was emphasized that this project and its economics were prepared prior to any finalization of either the sales or service agreement. Mr. Clem stated, however, that the final sales agreement would be within the allowance made for selling expenses in the request, and Mr. McWhirter said the same was true for the service agreement and the appropriation request manufacturing cost estimates. In answer to a further question by Mr. Drake, Mr. McWhirter said that Pennsalt should obtain additional savings (i.e. over and above those in the request) of about $180,000 through the absorption by

Penn-Olin of Calvert fixed costs, etc. Although these savings were assured, they would not be obtained, however, without some additional investment on Pennsalt's part. This included the new pumping station and a railroad siding but, in total, would not exceed $100,000 to $125,000.

[fol. 2476] It was also brought out, however, that the depreciation rates shown for the Penn-Olin Chlorate plant were substantially slower than for similar facilities at Portland. Mr. Istas confirmed this fact stating that this had been done to improve the profitability of Penn-Olin; at the same time, they should not be considered as being unrealistically low.

4. Mr. McWhirter confirmed that he had the necessary people to staff this operation.
5. The Committee approved Appropriation Request ID-001-PO.

ID-001-PO Penn-Olin Chlorate Plant Approved.

[fol. 2477] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXHIBIT 428

Olin Mathieson Chemical Corporation

Extract

Date: October 14, 1960.

To: Mr. E. Block (6) at Baltimore
From: Corporate Staff at 460 Park Avenue
Subject: Staff Comment on Chemicals Division, Whither Report

Copy To: Mr. S. de J. Osborne.

I. General

The document entitled "Chemicals Division Capital Requirements 1960—1964—Ex Organics" submitted as of July 1960 does not, in the Staff opinion, qualify as a "Whither Report," and the Staff recommends that the Chemicals Division prepare and submit a consolidated "Whither Report" covering the period 1961—1965 at the earliest date practicable.

In the paragraphs following are specific suggestions from the Staff concerning matters to be included in such a Chemicals Division "Whither Report."

II. Overall Objective of the Chemicals Division

The Staff considers that the broad objectives of the Chemicals Division are no longer adequately stated by the 1958 "Division Objectives Report" and require reappraisal and restatement in less general terms. Specifically, the Staff believes that the overall objective of the Chemicals Division during the period 1961—1965 is properly that of substantially improving its present rate of return on gross investment, which now compares unfavorably with its major competitors as shown in the table "Other Company Comparisons" on the following page.

The Staff regards return on gross investment as the most meaningful index of divisional growth.

III. Basic Decisions Required in Order to Focus on Overall Objective

The Staff considers that, in order to attain the overall objective of increased return on gross investment, the Chemicals Division must necessarily propose, in this "Whither Report," basic decisions with respect to the future path which each of its several component Operations and Joint Ventures, namely: Agricultural, Organics, Blockson, and Industrial, Penn-Olin and Sun-Olin, should follow during the five-year period to be covered by the report.

[fol. 2478]

Other Company Comparisons

1959 Ranking (Return on Gross Assets)	% Return on Gross Assets		% Return on Sales	
	1959	1958	1959	1958
1 Smith Douglass	7.0	4.7	6.4	4.9
2 American Ag. Chem.	5.6	5.4	5.5	6.1
3 OMCC Agricultural Chemicals*	2.4	0.4	3.4	0.5
4 Va-Car. Chemical	1.2	1.8	1.3	2.7
1 Tennessee Corporation	9.9	7.2	12.7	10.0
2 OMCC Blockson*	8.7	7.9	9.3	8.9
3 Harshaw Chemicals	4.6	5.5	3.1	3.3
1 Stauffer Chemical Co.	7.8	6.8	9.7	8.5
2 Hooker Chemical	5.8	5.1	8.9	8.5
3 OMCC Industrial Chemicals* (ex Organics)	5.7	4.7	9.3	7.9
4 Diamond Alkali	5.1	3.1	8.2	5.7
5 Wyandotte	2.5	1.7	4.8	3.5
1 DuPont (ex General Motors)	7.7	8.5	14.1	12.1
2 Union Carbide	6.5	5.1	11.2	9.6
3 OMCC Chemicals Division* (ex Organics)	6.2	4.7	8.2	6.6
4 American Cyanamid	5.9	5.3	9.0	8.3
5 Dow Chemical	5.7	3.6	10.3	7.0
6 OMCC Chemicals Division* (incl. Organics)	5.4	4.0	7.7	6.2
7 Monsanto Chemical	4.9	3.9	8.0	6.3

* After Corporate charges, including interest on borrowings, for purposes of comparison.

[fol. 2479] The Staff is of the opinion, correctly or incorrectly, that the Chemicals Division now lacks a specific objective and a plan tailored to the attainment of this objective, and is therefore forced to operate on what is essentially an opportunistic basis.

IV. General Measures to be Employed In Improving Return on Investment

The Staff believes that this overall Divisional objective can be accomplished through a combination of efforts in the following directions:

a. Recognition by Chemicals Division personnel generally, that the basic task is that of increasing return on gross investment.
b. Improvements in Divisional organization incorporating the Line and Staff concept, accompanied by general upgrading of management personnel.
c. New investment in areas where the opportunity of return on investment is greatest.
d. Institution of cost reduction programs in existing operations both in terms of increased efficiency of existing facilities, and in terms of new investment for cost reduction purposes.
e. Elimination of minor unprofitable and marginal operations tending to divert management attention.
f. Reappraisal and redirection of research and development activities in accord with the Divisional objectives.

In support of these general statements the Staff offers the arguments contained in the following paragraphs for examination by the Chemicals Division in the course of its preparation of the Whither Report.

V. Present Indications as to Future Results of Chemicals Division

The Comptroller's Office has prepared indicated financial results of the Chemicals Division based on all presently available information, including 1960 "rough estimates," economic evaluation from CAR's and from Chemical Division "Whithers" for the period 1960—1965 which is presented in summary form in the table shown on the following page.

[fol. 2480] (Extract)

Chemicals Division

Indicated Return on Gross Investment

(Divisional Level before Corporate Expense)
(000 Omitted)

(Actual)

	1959	1960	1961	1962	1963
Industrial					
Gross Investment	155,859	171,488	203,497	212,240	213,751
Net Profit	13,012	13,299	15,070	16,837	17,713
% Ret. on Gross Inv.	8.3	7.8	7.4	7.9	8.3
Penn Olin (50%)					
Gross Investment		850	3,564	3,564	3,564
Net Profit			(12)	117	358
% Ret. on Gross Inv.				3.3	10.1
Total Chemicals					
Gross Investment	303,111	342,230	403,523	433,294	446,367
Net Profit	19,381	18,516	22,579	28,009	31,789
% Ret. on Gross Inv.	6.4	5.4	5.6	6.5	7.1

[fol. 2481] The Staff concludes, from examination of this data, that the programs so far advanced by the Chemicals Division, after taking into effect the shrinkage between predicted and realized earnings, will not have the desired effect of substantially increasing return on gross investment, and that a "new look" is essential.

VI. Basic Chemicals versus Upgrading

The Staff is of the opinion that a primary decision to be faced in Chemicals Division in shaping a program to accomplish the objective, is whether to continue expansion in low value merchant chemicals, or whether to concentrate on upgrading, and simultaneously increase the captive use within the Division and the Corporation of basic chemicals now or presently scheduled to be produced by the Chemicals Division.

The Staff has noted with great concern the downward trend in return on investment on basic chemicals for merchant purposes and seriously questions the wisdom of continuing to invest large amounts of money in this segment of the Division's business.

The Staff seriously questions the merit of the arguments previously raised that it is necessary or desirable that the Chemicals Division maintain its share of the domestic market for basic merchant chemicals, and particularly that it is either necessary or desirable to make a major investment in low profit basic merchant chemicals for the purpose of keeping competitors out of that market, or to keep major customers from building their own plants.

From the table of "Other Company Comparisons" previously cited, it is apparent that those companies ranking above the Chemicals Division in earnings on investment are predominantly "upgraders," while those ranking below are predominantly producers of merchant chemicals. The Staff is of the opinion that the route to greater profits in the Chemicals Division is in the direction of doing as much work as possible on every item produced before its sale.

VII. Cost Reduction Programs

The Staff is aware that, for reasons beyond the control of the Chemicals Division, certain of its facilities are overdue for replacement and modernization, and believes that expenditures for the purpose of cost reduction are important to the attainment of the desired objective.

The Staff is also of the opinion that investment in capable personnel for the purpose of operating existing facilities at increased efficiency, and for the purpose [fol. 2482] of searching out opportunities for cost reduction, are an essential part of a cost reduction program.

The Staff has the general impression that the Chemicals Division has devoted less attention and effort to cost reduction programs in existing operations than it

has to expansions and new projects which latter have an inherently greater risk for the same predicted return.

VIII. Elimination of Unprofitable or Marginal Operations

Certain of the Chemical Division's activities, including the resale of chemicals produced by others, and the operation of certain minor plants identified in the Appendix hereto as "Low Margin Plants," are individually unattractive financially.

The Staff regards as essential to the development of a planned program a close examination of the merit of continuing these activities both from a strict financial viewpoint, and also from the point of view of dilution of Chemical Division management attention.

IX. Relative Profit Potential in Each Element of the Chemicals Division

The Staff is of the opinion that the extent and rate of growth of each Operation of the Chemicals Division should be proportional to the ability of the Operation to contribute toward improved return on investment of the Chemicals Division as a whole.

In effect, this means that a single investment standard for capital projects should be set for Chemicals Division as a whole rather than individual standards for each Operation according to some measure of the historical profitability of each.

This practice will have the effect of placing the bulk of new funds in the most profitable areas and, conversely, of restricting expenditures in other areas where the profit potential is least, to replacements and to cost reduction projects having an adequate return.

The Staff believes that, under such circumstances, growth will take place in the direction of upgrading rather than in the direction of expansion in basic merchant chemicals.

[fol. 2483] X. Reappraisal of Research and Development Effort

The Staff is particularly concerned in that a substantial part of the Chemicals Division's research and development effort is presently directed toward the development of processes for the production of chemicals now established in the market place for which the necessary know-how exists in the hands of others and might better be obtained by purchase. The Staff is of the opinion that the proper function of Chemicals Division process research is to develop original technology for novel products and to develop processes for established products only when the necessary know-how cannot be obtained from others on reasonable terms.

If the route to greater return on investment in the Chemicals Division lies in the direction of upgrading, then it is evident that the Chemicals Division's research and development effort must be redirected and augmented to provide future opportunities for the production of novel chemicals.

It appears to the Staff that the fruits of such a program cannot be realized to any considerable extent in the next five years but should be directed to provide the second generation of upgraded chemical products.

The Staff is of the opinion that the know-how for upgraded products to be produced during the five-year period must be derived principally by acquisition from third parties, but that it is essential that the ground work for the second generation of projects be laid now based on an objective appraisal of where future profits lie.

* * * * * * *

[fol. 2484] H. J. Reed, (For Corporate Staff).

cz

[fol. 2485] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 1

Pennsalt Chemicals

Subject: Chlorates Opportunities East of the Rocky Mountains (Ammonium Perchlorate)

Date: November 11, 1958
To: Mr. R. W. Sloan
From: R. J. Eastman
Copies To: L-9, W-17, K-5

Mr. Karr telephoned yesterday and asked that the following information developed last week in Washington, D.C., be brought to the attention of Technical Division personnel.

1. The ammonium perchlorate plant (Hooker—HEF) under construction at Columbus, Mississippi will have a rated capacity of 2,000 TPY (Note: This confirms the capacity estimate discussed in the chlorate meeting 11/3/58).

2. There is a possibility that "double accounting" exists in the several estimates of future demand for ammonium perchlorate obtained from the rocket engine manufacturers (each company may be projecting its demand on the basis of obtaining all of the business). This possibility will be investigated further.

3. In view of the possibility of reduced demand and greater installed capacity, P.C.C. should prepare for future examination a cost estimate on an alternate Eastern venture producing for sale 20,000 TPY sodium chlorate and only 5,000 TPY ammonium perchlorate.

* * * * * * *

In view of this information, Mr. Karr suggested that Technical Division might want to prepare an alternate case scaling perchlorate cost estimates from the 10,000 TPY plant to a 5,0000 TPY. (Note: This level was earlier estimated based on findings of the Market Report 10/9/57. Review and updating will be required.)

RJE/AKK

[fol. 2486] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 2

Ammonium Perchlorate—General August 15, 1960.

Mr. H. C. Land
P. C. Staples
C20 D11 K5 M32

Attached is a communication from the Department of Defense which we received today here in Tacoma. This pretty much coincides with our thinking as expressed in my memorandum of August 1st to you under same subject.

Have you had any reaction from Philadelphia having to do with our suggestions of August 1st?

——, ——.

PCS/ep
attach.

[fol. 2487] Copy

Assistant Secretary of Defense
Washington 25, D.C.

(dated 8/9/60).

Dear Mr. Karr:

Your company and the other producers of ammonium perchlorate have indicated to various agencies of the Department of Defense your interest in obtaining information on the possible level of future military requirements for that material.

We have now completed a study of potential requirements that might arise if unilateral, long range future plans of each military department were actually carried into effect, and we are informing all of the producing companies about our general conclusions.

We have concluded that there are no predictable developments which would change the present situation of a substantial excess of capacity over requirements, for the next two or three years.

There is a possibility that within about four years there might be a fairly sharp increase in Department of Defense

annual requirements, and that our needs by Fiscal Year 1964 might possibly exceed, at least temporarily, the total annual production capacity of all current producers. There is no assurance, however, that such an increase in demand will occur, or would last more than a year or two if it does occur. If the prospect of such an increase should become firm, it probably would be possible to meet the problem by stockpiling some ammonium perchlorate in advance of FY 1964, rather than encouraging the provision of production facilities capable of meeting what could be a peak demand of relatively short duration. The question of whether stockpiling should be undertaken, and if so when, is entirely dependent upon progress of development efforts, size and composition of future forces, and the anticipated production capability of industry at the time future decisions are made. Taking all known factors into consideration at this time, it appears to us that for some time to come the capacity of the industry is likely to exceed our probable requirements.
[fol. 2488] It is, of course, to our advantage to have several reliable producers and to encourage competition. On the other hand, it obviously would be a disservice to you to create a false sense of optimism about our future needs.

Sincerely yours, /s/ Perkins McGuire, Asst. Secretary of Defense, (Supply and Logistics).

Mr. Errol H. Karr, Vice-President, Pennsalt Chemical Corp., 2901 Taylor Way, Tacoma, Washington.
DX 2

[fol. 2489] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 11

Extract from—Appropriations Committee Meeting No. 12
Date—December 23, 1958
Members Present—Messrs. Drake, LaLande and Willits
Others Present—Messrs. Collins, Land, Shanaman and Tuttle

B. PSW-086-P (Joint Chlorate and Perchlorate Expansion):

1. This request, as submitted, asked for $1,437,000 in fixed capital, broken down between the chlorate and perchlorate portions as follows:

Chlorate portion	$940,000
Perchlorate plant	497,000
	$1,437,000

Average annual earnings before taxes and return were estimated at $470,600. and 26.5% respectively.

Action Required

Submission of Perchlorate Project only. S12

2. During the discussion, the question was raised as to what the economics of a perchlorate expansion alone would be. It was decided to ask Mr. Shanaman to submit alternate estimates for the perchlorate expansion, assuming the chlorate requirements were, if necessary, purchased.

Renegotiation, T30

3. Mr. Drake also requested that the Tax Department check on the question of renegotiation. One plan is for Pennsalt to produce sodium perchlorate; sell this product to a joint venture (Pennsalt being one partner) and this joint venture to convert the sodium perchlorate to ammonium perchlorate, and

then sell the ammonium perchlorate to a government contractor.

The question to be resolved is what steps in this entire procedure, if any, would be subject to renegotiation.

[fol. 2490] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 12

Sodium Chlorate—Calvert City

I. Return based on current selling price:

Sales—12,000 tons @ $81.5/cwt		1,960,000
Less freight equalization @ $0.20/cwt		48,000
Net Sales		1,912,000
Manufacturing Cost @ $5.78/cwt	1,390,000	
Tank car expense @ $0.06/cwt	14,000	
Selling & Adm. @ 12% of Net Sales	228,000	
Total Cost		1,632,000
Gross Profit		280,000
Investment		
Fixed Capital	4,575,000	
Working Capital	275,000	
Total	4,850,000	
Pre-tax Return on $4,850,000		5.8%

II. Selling Price required to give 15% pre-tax return:

Total Investment	4,850,000
Gross Profit equal to 15% return	730,000
Gross Profit equal to 15% return $/cwt	$ 3.04/cwt
Manufacturing Cost	5.78
Tank Car Expense	0.06
Freight Equalization	0.20
Total before S. & A.	$ 9.08

Selling price = 9.08 + (.12 x selling price)
= 10.30/cwt.

gtc/r
8/23/56

[fol. 2491] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 13

Olin Mathieson Chemical Corporation

Date: March 26, 1957

To: B. H. Wojcik at Baltimore
From: W. C. Gardiner at Niagara
Subject: Sodium Chlorate from Soda Ash

Copy To: J. O. Logan,
B. H. Nicolaisen,
R. A. Turner,
A. J. Holmes,

Electrochemical Survey Report H-35.506 recently issued by Turner shows that chlorination of soda ash will produce chlorate with a Return of 35% on an Investment of $686,000 for 40 tons per day of sodium chlorate. This is the most economical way for us to get into the business and we are concentrating our efforts on this process.

At Saltville, 50% caustic soda from the cells is about the same cost as Decomposed Ash and cheaper than Light Ash. The process should probably be worked out so that any of the alkali raw materials could be used.

I want to point out that chlorate is less profitable than chlorine and caustic. The Return from producing chlorate by a chemical method assumes that the alakali and chlorine are products that can't be sold. The relative merits are shown in the attached table.

R.H.W. 3/28/51: W. C. Gardiner.

[fol. 2492] Comparison Between Selling Chlorine and Caustic Soda as Such or as Converted to Sodium Chlorate

	Sodium Chlorate	Chlorine	Caustic
Annual Production—tons	14,600	32,100	42,500
Selling Price—per ton	$ 161.80	$60.00	$55.00
Annual Sales	$2,350,000	$4,263,500	
Production Cost—per ton	$ 118.72	$26.00	$23.50
Annual Production Cost	$1,730,000	$1,835,000	
Sales and Administration—% of Sales	5	1	1
Sales and Administration—Annual	$ 117,000	$ 42,800	
Total Cost of Sales	$1,847,000	$1,877,800	
Operating Profit	$ 503,000	$2,385,700	
Tax at 52%	$ 261,000	$1,240,000	
Net Profit after Taxes	$ 242,000	$1,145,700	
Difference between Profit from Chlorate and Chlorine and Caustic		$ 903,700	

I am not familiar with similar prices for soda ash but I would guess that this difference would be cut in half.

[fol. 2493] In United States District Court

Defendants' Exhibit 14

Pennsalt Chemicals

Subject: Ammonium Perchlorate at Calvert City, Ky.—E-726

Date: January 17, 1958
To: Mr. G. R. Evans
From: W. L. Huntington
Copies To: W17

An order of magnitude estimate of the facilities required to prepare 6,000 tons annually of ammonium perchlorate has been prepared. The basis of the invested capital required is the cost estimate of the sodium perchlorate facilities prepared by the Portland office scaled down to the required size and a rough estimate of the cost of the ammonium perchlorate metathesis plant obtained from the "River Bank Project Report" with capacity and prices adjusted to the 1957 levels. A cross check of this latter cost was made against a price reported in December, 1955 Chemical Engi-

neering, page 334 for the "Wecco" Henderson Nev. installation.

Based upon a Pennsalt capital outlay of $3,530,000 plus $2,810,000 of borrowed capital, we can expect a return of $828,000 annually before taxes. This represents a 23.5% return on our portion of the investment. The selling price of ammonium perchlorate "propellant grade" is now about 32½¢/lb. and our packaged cost should be about 18.9¢/lb.

The raw material charged is sodium chlorate assumed available from a 25,000 ton/year plant @ 5.7832¢/lb. A charge of about 1¢/lb. has been made for the replacement costs of the platinum electrodes used in the sodium perchlorate step. Labor, utility and service rates used are those believed to be in effect after the perchloroethylene and hydrogen fluoride expansion facilities are in service. In addition, a profit of $46.34/ton has been charged against the sodium chlorate used in the production.

Wm. L. Huntington.

WLH/jem
Enclosures

[fol. 2494] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 15

Pennsalt Chemicals

Subject: E-726—Ammonium Perchlorate at Calvert City
Date: January 31, 1958
To: Mr. A. S. Woodard
From: G. R. Evans

Attached herewith is Mr. Huntington's exploratory analysis of subject proposal.

It was understood that the manufacture of ammonium perchlorate should be presumed to be an operation captive to the 25,000 ton per year sodium chlorate plant currently under consideration. On this basis, total capital requirements were estimated to be $6,340,000 of which $5,620,000 represents fixed capital.

To align this study with that previously submitted for sodium chlorate, one of the contained sheets contemplated

borrowing 50% of the total capital at 6% on a ten year amortization basis. This then requires Pennsalt to invest $3,170,000. A before-tax profit of $803,000 is realized, corresponding to a 25.3% return on the equity capital.

As a variant and in recognition of the current decline of interest rates, a second analysis assumed the borrowing of 50% of the fixed capital at 5% to be amortized over a period of ten years. This would require an equity investment of $3,530,000 to produce a before-tax profit of $828,000 on a return of 23.5%.

The return on investment is computed after deduction of the profit expectancy on the sodium chlorate consumed in this operation.

G.R.E.

GRE/jm
Enclosure

[fol. 2495] In United States District Court

Defendants' Exhibit 16

January 31, 1958.

Mr. C. W. Frost, Baltimore
J. O. Logan, Baltimore
Sodium Chlorate

W. A. King,
D. Richardson,
K. C. Frazier.

In view of the first order being in the works for shipment of chlorate to Crossett Paper Mills, it was confirmed to me today by Pennsalt that they will invoice us on the basis of the net at their Portland plant less 5%. We will invoice the customer and I would await receipt of the first invoice from Pennsalt before invoicing Crossett. If there is any question in connection with freight absorption, etc., please contact me before taking action.

J. O. Logan.

[fol. 2496] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 21

Inter-Office Memo

Olin Mathieson Chemical Corp.

Date: December 11, 1958.

To: Dr. B. H. Wojcik at Baltimore
From: W. C. Gardiner at Niagara Falls
Subject: Sodium Chlorate Plant Location
Copies To: Mr. B. H. Nicolaisen.

We obtained the latest freight schedules on sodium chlorate this week and estimated rail freight equalization from minimum point to 34 paper mill locations on a weighted basis.

Sodium Clorate Plant Location	Freight Equalization $/ton
Columbus, Miss.	5.90
McIntosh, Ala.	6.25
Saltville, Va.	7.80
Lake Charles, La.	9.55
Brunswick, Ga.	13.00
Burnside, La.	14.80
Omal, Ohio	20.30
Niagara Falls, N. Y	22.40

Current regulations prohibit bulk shipment of $NaClO_3$ in barges. Getting a statement on what would be involved to change this & time element.

BHW

It is obvious that Hooker has a preferred location. Being in the TVA power area gives Hooker and Ampot a still greater advantage.

We plotted the paper mill locations on a map with existing Olin Mathieson plants. Huntsville may be a better location than any considered previously. There may be even better locations at plants operated by other Divisions. We do not want to consider a "grass-roots" chlorate plant as the overhead would probably kill it. We are waiting for blank maps of the U. S. but, in the meantime, have used copies from the Olin Mathieson Chemical Corporation booklet (1957) and enclose a copy showing locations of the 34 paper mills in red and OMCC plants in black.

We have two questions:

1. Can Huntsville be considered as a sodium chlorate plant location since we are on arsenal property? If we had to locate away from the present site, then it would be practically a "grass-roots" plant.
2. Should we consider a chlorate plant at an existing Olin Mathieson plant operated by another Division?

If the answer to one or both of these questions is "yes," then we have to have local unit costs comparable to those supplied by John Koehn for Saltville and McIntosh. In addition, I will have to ask Traffic Department for further freight rates from the additional localities to the 34 paper mills. I attach a list of the unit costs needed.

W. C. Gardiner.

Write letter to power rate at—
Can we barge bulk chlorate?

E B question.

WCG:HM
Encl.

[fol. 2497] Please get the following unit costs, if available, for the Huntsville, Ala. plant.

Brine
Salt ($/ton)
Hydrochloric Acid
20° Be ($/T 100% HCl)
Steam ($/1000 lb.)
Bunker C Fuel Oil
Electricity (7,000,000 KWH/mo)$/KWH
Water, Well ($/1000 Gal.)
Water, River ($/1000 Gal.)
Labor-Operating ($/MH)
Labor-Operating ($/MH)
Labor-Repair ($/MH)
Overhead ($/yr. or % of Investment)
  Direct
  Indirect
  Taxes and Insurance
  Repair Overhead

WCG:HM
12/11/58

Huntsville would have to be a "grass roots" plant unless WCG is thinking about taking over the USI plant.

HWS.

[fol. 2498] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 22

April 14, 1959.

Mr. J. O. Logan, Baltimore
C. W. Frost, Baltimore

Tonnage of Sodium Chlorate Estimated to Be Moved During 1959 and 1960 and Beyond Under Our Present Sales Arrangement With Pennsalt

Mr. W. A. King,
Mr. K. C. Frazier,
Mr. O. J. Theobald, Jr.,
Mr. J. G. McMullen.

Referring to your memo of April 6, I have discussed the matter of Sodium Chlorate sales with the various District Managers involved and based on information obtained from them, I wish to submit estimated sales figures as follows:

Customer	Location	1959	1960	Next Several Years Per Year
International Paper Co.	All 6 Locations	0	1000 tons	1000 tons
Champion Paper & Fibre	Canton, N. C.	135 tons	135 tons	135 tons
Crossett Paper Co.	Crossett, Ark.	90 tons	90 tons	90 tons
Container Corp.	Brewton, Ala.	0 tons	180 tons	180 tons
Coosa River Newsprint	Coosa Pines, Ala.	90 tons	200 tons	200 tons
Brunswick Pulp	Brunswick, Ga.	1080 tons	1080 tons	1080 tons
Scott Paper Co.	Mobile, Ala.	135 tons	300 tons	300 tons
St. Marys Kraft	St. Marys, Ga.	45 tons	45 tons	45 tons
West Va. Pulp & Paper	Covington, Va.	45 tons	45 tons	45 tons
St. Regis Paper Co.	Pensacola, Fla.	0 tons	180 tons	180 tons
		1620	3255	

All of the District Managers report that with many accounts they have encountered situations which preclude the possibility of their putting on any real pressure to obtain Chlorate business. Some of these accounts are willing to give us Chlorate business, but only if we accept a smaller

tonnage of Chlorine and Caustic business than we are now getting.

A few accounts will not consider giving us business because of the location of the producing point, i.e., Portland, Oregon and they are not satisfied to accept our storage-in-transit arrangement at Lake Charles because that is still not the producing point.

Several accounts would give us a letter of intent to purchase Chlorate from us if we can definitely indicate that we will build a plant for the production of Chlorate which would give them a more favorable f.o.b. point than now exists.

Based on the foregoing, it would appear therefor, that we cannot expect any worthwhile expansion of Chlorate sales under our present sales arrangement with Pennsalt.

The picture, however, would be entirely different if OMCC alone or jointly with Pennsalt were to build a plant at a favorable location in the South or Southeast.

C. W. Frost.

[fol. 2499] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 23

Olin Mathieson Chemical Corporation
Mathieson Building
Baltimore 3, Maryland

John O. Logan

April 21, 1959.

Mr. L. M. Shanaman, Sales Manager
Heavy Chemicals Division
Pennsalt Chemicals Corporation
2901 Taylor Way
Tacoma 2, Washington

Dear Roy:

Several weeks ago Fred asked me to advise you of the probable sodium chlorate sales picture over the next several years. This subject has been thoroughly reviewed by all of our people active in promoting chlorate.

We have come to the conclusion that the tonnage moved

this year will approximate 1600-1800 tons. In 1960 we can envision 3200 tons of business and would anticipate that the volume would remain at this level for the next several years. We have the accounts making up this tonnage well in mind so that this is something more than just an intelligent guess.

The difficulties which prevent moving larger tonnage are probably recognized by you. They consist principally of the fact that we have no production but are merely selling your material and your production is located at a substantial distance from the market. Under these conditions, we find Purchasing people somewhat reluctant to build their volume with us.

I trust the above is the information Fred desired and if you have any specific questions about it, we will do our best to answer them.

Kind regards.

Very truly yours, John Logan.

JOL:rsm
Via Air Mail

[fol. 2500] In United States District Court

Defendants' Exhibit 24

Olin Mathieson Chemical Corporation

Date: May 1, 1959.

To: Mr. W. A. King at Baltimore
From: K. C. Frazier at Baltimore
Subject: Sodium Chlorate Plant

Copy To: Mr. J. O. Logan,
Dr. R. R. Shively,
Mr. C. M. Norton,
Mr. J. G. McMullen.

The sales group feel they do not have any justifiable reason for suggesting that we have a sodium chlorate plant at the present time. This is primarily due to the fact that we have a large unsatisfied demand in the products we now make.

It is felt that until such time as this demand is satisfied, we should not ask for money to diversify.

Enclosed is a letter from Mr. Theobald summarizing the reasons that were discussed in arriving at the above conclusions.

K. C. Frazier.

[fol. 2501] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 25

Olin Mathieson Chemical Corporation

Inter-Office Memo

Date: July 28, 1959.

To: Mr. W. A. King at Baltimore
From: R. R. Shively at Baltimore
Subject: Location of Sodium Chlorate Plant

We were asked to compare, for sales purposes, McIntosh, Ala. and Chattanooga, Tenn. as locations of a 15,000 ton sodium chlorate plant.

The principal difference between the two locations from a purely sales viewpoint would be the tonnage for which each creates a new, low f.o.b. point. McIntosh would be low freight producing point for customers using 17,350 tons per year. (1) Chattanooga would be low for customers using approximately 11,000 tons. (2)

Another consideration would be average equalization against existing production on shipments into the Southeast. Against Columbus, Miss., average equalization from McIntosh would be $1.40 per ton, from Chattanooga $1.80 per ton. (3)

The above factors are probably not significant in relation to a power cost difference of $11.80 per ton in favor of Chattanooga. (3)

It appears that the locations of the existing plants were carefully chosen by their operators to serve the Southeastern chlorate market. They are close together in the southern part of the TVA power network; they operate on

low cost power and are well located from a freight standpoint.

(1) "Chemical Division Capital Requirements", Page 18 and Exhibit 23, Page 44.
(2) Memo J. G. Chalfant to O. J. Theobald dated 9/11/58 attaching W. W. Northgraves' 1959 estimates chlorate consumption. Also discussion with M. E. Shoemaker, W. H. Brandt.
(3) "Economic Location of Sodium Chlorate Plant etc.", Electrochemical Survey Report H-35-510, April 17, 1959.

R. R. Shively.

RRS/bd

[fol. 2502] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 30

Pennsalt Chemicals

Confidential

Subject: Pennsalt-Olin Mathieson; Sodium Chlorate
Date: January 29, 1960
To: File
From: A. H. Clem
Copies To: D11 L9 L14 W1

I advised John Logan via telephone yesterday that we had completed our freight study on the sodium chlorate movement from Calvert City versus Chattanooga. Our findings indicate that if our sales were spread evenly among all potential customers in the pulp and paper field, Calvert City has a disadvantage on freight of approximately $1.80 per ton. For a 25,000 ton plant this would amount to $45,000 annually. The herbicide market has not been considered in this study. O-M has not yet completed their freight study but it is anticipated their figures will probably agree with ours.

I asked John if he would be free to see Cooper and me either today or Monday but unfortunately John is tied up both days. He told me he would excerpt the legal and fi-

nancial matters from the Sun-Olin letter of intent and forward them to me immediately. I should have this by Monday.

Other items we discussed were as follows:

1. Name—I think this is fairly well established as Penn-Olin. Whether it should be "Penn-Olin Corporation" or "Penn-Olin Chemicals Corporation" should be resolved.
2. Trademark—John proposes we give some thought to a trademark so that we can publish same as promptly as possible following the announcement.
3. Directors and Officers—In the Sun-Olin venture each company appointed four directors. In this particular case the President is from Sun and the Vice President is from Olin. Both the President and Vice President are members of the Board.
4. Cell—John again asked how we are progressing on the study of the Vickers Krebs cell versus our own cell. I told him we were working on this and hoped to have some information available by Thursday, February 4th, which is the date John suggested we meet to go over the various data available in preparation for the February 11th meeting.

[fol. 2503] 5. Power Cost—This should be readily available from Calvert City; John will obtain the Chattanooga figures.

6. Raw Material Cost (Salt)—These figures are, of course, available to us for Calvert City; John will obtain them for Chattanooga.

Early next week I will call John and set up a definite time and place for our Thursday, February 4th meeting. At this meeting he will probably have one of his technical people present to discuss the cell proposition with whomever we designate. We will also go over at that time the freight study and the other items mentioned above.

A. H. Clem.

AHC/eh

[fol. 2504] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 32

Olin Mathieson Chemical Corporation

Date: February 18, 1960.

To: Mr. Russell Hopkinson (3) at 460 Park Avenue
From: Mr. L. S. Howe at 460 Park Avenue
Subject: Pennolin Economics

Copy To: Mr. J. R. Sanderford.

In accordance with your verbal request of February 15, Bob Sanderford and I have reviewed the information available on PennOlin economics as contained in the J. Statz memorandum of February 10, 1960 and supporting data. In addition, the depreciation and tax calculations as used in the Cash Flow Table were checked by Mr. W. J. Hoefer.

Table I, attached, contains a brief summary of these economic data for the production of 10, 20 and 25 thousand tons of sodium chlorate. Since there are no detailed breakdowns of capital or production costs given, the summary figures given in the Statz report were accepted as is. Mr. Williamson's "Summary of Considerations Relative to Proposed Sodium Chlorate Project" dated February 3, 1960, indicated that the figures obtained from Pennsalt have been reviewed by our technical people and appear to be reasonable, accurate and on the conservative side.

From data in the literature, "Chemical Process Industries" by Shreve, independent economic estimates for the production of sodium chlorate were made, using the Pennsalt capital cost estimates in the absence of any other data. These economics are shown in Table II.

Comparing the Pennsalt and Shreve economics shows that the Pennsalt figures are more conservative, indicating a 7.8% return on investment for the 25,000 ton case versus a 9.7% return for the Shreve data. However, since even the optimistic (and less reliable) estimate has slightly under a 10% return on investment, it would be very desirable to obtain detailed breakdowns of capital and operating costs for further analysis.

L. S. Howe.

[fol. 2505]

Table I

Economics of Sodium Chlorate Production
(000 Omitted)

(Based on Pennsalt Data)

Production—Tons/Year	10,000	20,000	25,000
Investment			
Plant	4 094	5 645	6 185
Working Capital	379	629	776
Total	4 473	6 274	6 961
Sales			
Sodium Chlorate @ $161.80/Ton	1 618	3 236	4 045
Cost of Sales			
Materials			
Operation			
Overhead			
Depreciation (7%)	286	395	433
	1 259	2 075	2 428
	(125.90/T)	(103.75/T)	(97.12/T)
Corporate Expenses (12% Sales)	194	388	485
Total	1 453	2 463	2 913
Gross Profit	165	773	1 132
Net Profit (52% Tax)	79	371	543
% to Sales	4.9	11.5	13.4
Return on Investment %	1.8	5.9	7.8
Cash Flow	365	766	976
Payout Period—Years	12.3	8.2	7.1

LSH :2/18/60

[fol. 2506] Table II

Economics of Sodium Chlorate Production
(000 Omitted)

(Independent Estimate Based on Data in Literature)

Production—Tons Year.....	10,000	20,000	25,000	25,000
Investment (Penn Salt data)				
Plant	4 094	5 645	6 185	
Working Capital	379	629	776	
Total	4 473	6 274	6 961	
Sales				
Sodium Chlorate				
@ $161.80/Ton 161.20	1 618	3 236	4 045	4 030
Cost of Sales				
Materials	101	202	253	371
Operation	584	978	1 167	1 318
Overhead	263	304	299	171
Depreciation (7%)	286	395	433	357
	1 234	1 879	2 152	2 217
	(123.40/T)	(93.95/T)	(86.08/T)	(88.68)
Corporate Expenses (12%)	194	388	485	485
Total	1 428	2 267	2 637	2 702
Gross Profit	190	969	1 408	1 328
Net Profit (52% Tax).....	91	465	676	637
% to Sales	5.6	14.4	16.7	15.8
Return on Investment %...	2.0	7.4	9.7	9.2
Cash Flow	377	860	1 109	994
Payout Period—Years	11.9	7.3	6.3	7.0

LSH:2/18/60

[fol. 2507] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 33

Olin Mathieson Chemical Corporation

Date: March 8, 1960.

To: Mr. R. Hopkinson at 460 Park Avenue
From: H. J. Reed at 460 Park Avenue
Subject: Sodium Chlorate

I have looked over the file on the sodium chlorate project and discussed it a bit with Mr. Howe. I have the following preliminary comments:

1. The project appears marginal from strictly an earnings point of view as you have noted, and sensitive to volume because of the high capital cost of plant in relation to sales.
2. There is no support in the file for the capital estimate. I should like to see the detail and basis for the estimate and perhaps later to talk to the people who actually prepared it in order to get a feel as to its reliability.
3. In view of the marginal economics, it would seem desirable to locate the plant where maximum existing service facilities are already available—in other words to construct essentially a "battery limits" plant grafted on to either an Olin Mathieson or Pennsalt existing installation. I do not know the extent to which this has been anticipated in the capital estimate.
4. The product freight study of course gives only a partial answer relative to plant location. I would judge that the prime location factors are:

   Delivered cost of salt
   Cost of steam or fuel for steam generation
   Cost of power
   Freight on product

   These are essentially the same factors affecting location of caustic chlorine plants.

[fol. 2508] 5. The economic evaluation is at 100 percent capacity. This may be normal practice but it

would be useful to look at the break-even point. Historically at what level do our chemical plants operate?

6. Is there any possibility of adding a related product to the project in order to sweeten up the economics a bit?
7. In general I believe this project lends itself to rather precise pro forma analysis.

H. J. Reed.

HJR:CZ

[fol. 2509] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 36

April 25, 1960.

Mr. R. Hopkinson, 460 Park Ave.
C. L. Williamson, Baltimore
Sodium Chlorate Project

Mr. S. de J. Osborne,
Mr. E. Block,
Mr. D. W. Drummond,
Mr. W. F. Otterstrom,
Mr. J. E. Williams,
Mr. J. O. Logan.

4/27 RH called and said Stanley O. indicated he had not given EB the go ahead. I told him we would take another look when prelim. engineering was completed.—

On March 7, members of this division presented background information and economics relative to subject matter. To keep you informed, the following is submitted.

The joint venture corporation, Penn-Olin Chemical Company, has been formed and the Board of Directors and Officers are as follows:

Pennsalt

J. McWhirter—President
W. C. Willits—Treasurer
W. A. LaLande
A. H. Clem

Olin Mathieson

J. O. Logan—Vice President
C. L. Williamson—Secretary
J. G. Johns
J. L. Wood

The technology team comprised of two members from each parent company visited numerous plants in Europe, and have submitted their report which in essence recommends use of Pennsalt's cell with certain modifications. As a result of this group's efforts, it was concluded that the project was ready for preliminary engineering.

At the last board meeting of Penn-Olin and in keeping with the letter of intent, it was concluded that we should go forward with the preliminary engineering which is estimated to cost between $130,000 and $150,000.

As a result of the further information that has been obtained from further discussions with Pennsalt personnel as well as that from Vickers-Krebs and Pechiney, we are convinced that our financial data previously submitted is reasonably accurate and, if anything, is on the very conservative side.

A trip has been made to Calvert City to inspect the proposed location for the chlorate plant contiguous to Pennsalt's chlor-alkali installation. Arrangements will be made for the transfer of ten acres to Penn-Olin with an option on an additional ten acres contiguous thereto along with necessary easements, rights of way, etc. necessary or desirable to protect the future of Penn-Olin.

A preliminary discussion has taken place with Mr. Walter O'Connell and Pennsalt Treasurer, Mr. W. Cooper Willits, and no difficulty is anticipated in this area. At this time, we are starting to work on a feasibility report and will not be able to complete same, however, until the preliminary engineering work is completed on or about July 12.

It is anticipated that when we complete the feasibility report, you will be provided a copy for your files.

C. L. Williamson.

[fol. 2510] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 40

Penn-Olin Chemical Company

Estimated Earnings and Return on Investment

Revised July 27, 1960 to Include Resale Operations and Alternate Capitalization Plan

Attached herewith, to be used in conjunction with the schedules dated July 11, 1960, are a revised Summary of Sales and Earnings 1961-1971, and a revised schedule of Estimated Cash Generation for the same period.

The Summary of Sales and Earnings now includes the forecast results of resale operations for 1961, as well as the sale of 3,000 tons from plant operations previously included. As the resale operation is predicted to be a virtual break-even transaction, the inclusion has no material effect on the return on investment figures as computed on the basis of an operating division of a company, without regard to excess depreciation or interest on borrowed money. Such return may be computed as follows (10.25 year average):

Gross Investment	$7,429,000
Average Annual Earnings before Taxes	1,134,968
Average Annual Earnings after Taxes (before Interest Deduction)	539,110
Return on Investment before Taxes	15.28%
Return on Investment after Taxes	7.26%

The schedule of Estimated Cash Generation has been revised to include the current thinking on capitalization. This schedule assumes the investment of each parent company to be $1,000,000, with the balance of $6,000,000 furnished by outside sources at an interest rate of 5%, and being repaid at the rate of $800,000 per year beginning in mid-year 1962. As discussed at the recent Board Meeting, the schedule also shows dividends to the parent companies beginning in 1964.

R. J. Niederuter.

RJN/nmd
Enc.

[fol. 2511] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 41

Pennsalt Chemicals

Subject: Penn-Olin—Return on Investment
Date: August 16, 1960
To: Mr. J. McWhirter
From: A. S. Woodard
Copies To: L9—N22—W1

Because of the interest in knowing the influence of return on investment of current estimates of capital and manufacturing costs and the influence of eliminating the production and marketing of packaged chlorate in the proposed Penn-Olin plant, Mr. Wood and the writer reappraised these items in a meeting on August 15th. This re-examination of the proposed Penn-Olin chlorate plant shows a potential return on investment before taxes of 21% as compared to the previous estimate of 16.86%. Attached is a summary tabulation of the computations. We have listed below the principal factors which have changed this return.

Three factors cause this improvement: reduction in estimated fixed capital cost of the plant, reduction in the manufacturing cost, and increase in the capacity of the plant.

The reduction in the estimated fixed capital cost from $6,700,000 to $6,400,000 is the result of:

(a) More favorable bids on major electrical equipment than expected.

(b) Savings in the cost of construction now evident from the substantial additional engineering completed.

(c) Elimination of facilities for packaging and warehousing of packaged material.

Reduction in manufacturing cost is realized from:

(a) Reappraisal of the amount of chlorine required for pH control of the electrolyte with the conclusion that this requirement can be materially reduced.

(b) From the Sales' decision to eliminate packaging of the product which reduces Works' cost and yields increased profit on the 2500 tons per year chlorate previously planned to be marketed as packaged goods.

[fol. 2512] Finally, with further engineering completed, it is evident that the design of the plant results in a balance of facilities (electrical conversion equipment, electrolysis facilities, and process facilities) which gives an inherent capacity 6% greater than the arbitrary 25,000 tons per year capacity selected. Assuming that this capacity can be sold, more favorable total works' costs are realized and, thus, improved return on investment.

A. S. Woodard.

asw:jh
attach.

[fol. 2513] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 42

Olin Mathieson Chemical Corporation

Date: August 22, 1960.

To: Mr. S. de J. Osborne, Staff Coordinating Committee, CAR Committee at 460 Park Avenue
From: H. J. Reed at 460 Park Avenue
Subject: Revisions to Proposals of Penn Olin Chemical Co.

Copy To: Mr. E. Block,
Mr. J. Logan,
Mr. J. L. Wood.

This memorandum covers discussions in Philadelphia August 19th, 1960 between J. L. Wood of Chemicals Division, Al Woodard, Manager of Engineering for Pennsalt Chemicals Corporation, I. D. Ritson, Corporate Director of Construction, and the writer, with respect to the resubmission of the previously rejected proposal for the construction of a sodium chlorate plant at Calvert City, Kentucky.

The purpose of this meeting was to examine the basis on which the proposal has been resubmitted and to make certain that the parent companies were both looking at the same facts, opinions, and figures as a basis for discussion.

It became apparent, during this meeting, that the revisions described in memorandum from J. L. Wood to J. O. Logan of August 16th were not wholly accepted by Pennsalt. Further revisions indicated herein as of the date of this memorandum do, however, represent agreement with Pennsalt as represented by Mr. Woodard on August 19th.

The essential features of the revised proposal are individually described below:

I. Rerating of Plant Capacity to 26,500 Tons Annually

The proposed plant, with no additions, is now represented as having an annual capacity of 26,500 tons rather than 25,000 tons as originally reported.

This stems principally from the fact that the cells were previously rated at 8000 amperes and are now rerated at 8500 amperes.

Mr. Woodard stated, that, in the original estimate, he had provided for the installation of the necessary additional anodes to permit operation at 8500 amperes without increase in current density.

While the proposals for transformers and rectification equipment on which the original estimate was pre- [fol. 2514] pared was based on 8000 ampere cells and a nominal plant capacity of 25,000 tons annually, Mr. Woodard stated that he had received further proposals for like equipment carrying the higher rating which were within the limits of the original estimate, and which are still subject to downward negotiation. (It is generally recognized that electrical equipment of this type can usually be purchased at about 80% of the initial quotations. In the original estimate the cost of this equipment was entered at 85% of the quotations.)

In the process area outside of the cell room the plant design was stated by Mr. Woodard to be about 15-20% heavy in terms of original capacity and still 10-15%

heavy in terms of rerated capacity. (It is highly desirable that this portion of the plant have reserve capacity to permit uninterrupted cell room operation.) In response to a direct question, Mr. Woodard stated that, in his opinion and without qualification, the plant as presently conceived was capable of continuous operation at the rate of 26,500 tons per year. (A cell of the same construction proposed for Penn Olin has been operating successfully at up to 8000 amperes at Pennsalt's plant in Portland, Oregon.)

Mr. Wood is in agreement with the above opinions, both with respect to rerated plant capacity and ability to live within the original estimate on the rerated basis.

II. Design Changes

Mr. Wood reported that a sales decision has been made by OMCC Chemicals Division that all production was to move in bulk and no provision was to be made for installing drumming equipment. Mr. Woodard commented that, in Pennsalt's experience, the premium on drum shipments was inadequate to meet the actual incremental costs encountered. (On this basis it is apparent that a later installation of drumming facilities cannot be separately justified without increase in premium.)

The effect of this reduction in scope of work is to reduce the direct portion of the estimate by $109,000.

In Mr. Wood's memorandum of August 16th, a reduction in the capital estimate of $210,000 is shown as resulting from the substitution of evaporative crystallization for refrigerative crystallization.

[fol. 2515] It is apparent that this proposed cost reduction is premature at this time in the sense that Pennsalt has not yet accepted refrigerative crystallization, although recognizes its possible advantages and is actively investigating a possible change.

In his revised figures presented to Pennsalt management, Mr. Woodard has not taken credit for any capital

reduction in this respect, and it was agreed that OMCC should not take such credit at this time.

A small increase of $9,000 to correct for underestimated trackage facilities.

No other basic design changes are contemplated at this time.

In response to my direct question, Mr. Woodard stated that the reduction in capital estimate did not represent a reduction in quality of plant design or construction and that this was not a case of "gold plate" being removed.

III. Revisions to Capital Cost Estimate

A. Direct Costs

Mr. Woodard stated that United Engineers had prepared an independent estimate of the cost of the project using in some instances, proposals for equipment obtained directly in Pennsalt. In respect to labor and the balance of equipment and construction materials, however, United Engineers have used their own cost experience based on their construction of another plant (for a client other than Pennsalt) in the vicinity of Calvert City, Kentucky.

Mr. Woodard said that he had had two groups of Pennsalt engineers review the United Engineers' estimate, that both had criticized certain items as high or low, but that, on balance, Pennsalt had accepted the total of the direct costs estimated by United Engineers amounting to $5,260,000 as realistic.

The elimination of drumming facilities, with the add-back for trackage, has the effect of reducing the estimated direct cost to $5,160,000.

[fol. 2516] B. Indirect Costs

United Engineers was instructed, according to Mr. Woodard, to estimate the total job, including indirects, on a basis consistent with that which they

would be prepared to abide by if they were given an overall contract for the design and construction of the project. Mr. Woodard stated however, that he planned to use a local general contractor at Calvert City, who is to a degree captive, to execute the field work with Pennsalt staff at Calvert City in effect operating as construction managers. This contractor has been employed by Pennsalt at Calvert City for some years in like assignments, and for this project has offered to do the general and mechanical phases of the work for a fee of $50,000. He has also offered to guarantee the fee of his subcontractors (electrical, insulation, painting, etc.) at a total of $25,000 making the total construction fees $75,000.

The total fee (including an allocable part to engineering) contained in the United Engineers' estimate is $195,000. On the above basis, Mr. Woodard has reduced this item by $120,000 in the revised estimate. (In effect, Pennsalt is offering by this means to perform the construction management function for Penn-Olin at no fee, since the contractor is operating essentially as a labor contractor, and the engineering is to be handled by United Engineers with the allocable portion of the overall fee included as a cost of engineering.)

In addition, Mr. Woodard stated that Pennsalt had a substantial amount of construction equipment (including a crane) and tools on hand at Calvert City, and rather than sell them at this time at a fraction of their value, were willing to use them on the Penn-Olin project, and in addition that there was available at Calvert City temporary construction facilities which could be used on the Penn-Olin project. Furthermore he stated that his captive contractor had a preferential position in the local labor market and with local labor unions.

On this basis, Mr. Woodard stated that he had reduced by $80,000 the total United Engineers' estimate for indirect construction costs (comprising Engineering and Drafting, Job Supervision, Job Travel Expense, Job Office Expense, Purchasing

and Expediting Temporary Construction Facilities, Insurance, Taxes and Fringe Benefits, Construction Equipment and Tools, Job Accounting.

[fol. 2517] C. Contingency

The contingency amount of $310,000 estimated by United Engineers has remained unchanged in the revised estimate. Mr. Woodard conceded that this amount was low, and in fact was lower than the usual contingency used by Pennsalt in its own projects. He stated, however, that in his opinion the project was sufficiently defined at this time to justify this low contingency.

D. Recapitulation of Revised Capital Cost as of August 22, 1960

The revised capital estimate to be presented both to Pennsalt Chemical Corporation and Olin Mathieson Chemical Corporation is shown on the following page (comparisons with United Engineers' estimate shown for clarity).

IV. Revisions to Operating Costs

The pro forma operating costs, including incremental operating costs to the level of 26,500 tons annually were reestimated, and the figures contained in the revised economic evaluation under date of August 22, 1960 represent agreement between Mr. Wood and Mr. Woodard on this subject.

These revisions comprise the following items:

(1) A reduction in cost of chlorine of $27,000 per year based upon an estimated consumption of 40 pounds of chlorine per ton of product.

(2) An incremental cost of $84,000 annually representing all operating cost elements involved in an increase of production from 25,000 to 26,500 tons annually.

(3) A decrease in depreciation charges of $18,000 annually, representing reduced estimated investment.

(4) A decrease in the cost of containers (and packaging labor) amounting to $113,000 annually resulting from the elimination of drummed shipments.

[fol. 2518] Penn-Olin Chemical Corp.

Sodium Chlorate Plant-Calvert City, Ky.

	United Engineers 7-7-60	Penn-Olin 8-22-60
Rated Plant Capacity (T/Y)	25,000	26,500
Direct Construction Costs	5,260,000	5,160,000
Indirect Construction Costs	935,000	855,000
Contractor's Fee	195,000	75,000
Land	54,000	54,000
Contingency	310,000	310,000
Total Project Estimate	6,754,000	6,454,000

[fol. 2519] (5) An increase in the cost of annual tank car rental charges of $5,000 resulting from increased production, and an increase of general selling, administrative, and research expenses of $11,000, resulting from application of a 6% loading to incremental sales for these purposes.

V. Revised Economic Evaluation

On the following pages are the economic evaluation, revised as of August 21st, 1960 by Mr. Statz in accordance with the foregoing.

These figures are for the first year of operation at 100 percent of capacity, and reflect the revisions in estimates of both capital and operating costs previously cited.

[fol. 2520] Penn-Olin Chemical Company

Economic Evaluation
August 15-16, 1960

Particulars	PennOlin 1965 Eco. Eval.	Revised 8-22-60
Outlay to be recovered		
Gross outlay for new property to be capitalized	6,754,000	6,454,000
Less: Cash recovery on property to be sold	—	—
Net outlay for new property	6,754,000	6,454,000
Net outlay for new working capital	675,000	675,000
Outlay for expense portion of project	—	—
Moving, severance and other expenses	157,000	157,000
Federal income tax or credit at 52%	(82,000)	(82,000)
Net Outlay to be Recovered	7,504,000	7,204,000
Summary of Investment		
Gross property, plant and equipment	6,754,000	6,454,000
Less: Depreciation reserve	1,560,000	1,488,000
Net property, plant and equipment	5,194,000	4,966,000
Add: Working capital	675,000	675,000
Net Investment	5,869,000	5,641,000
Add back: Depreciation reserve	1,560,000	1,488,000
Gross Investment	7,429,000	7,129,000
Summary of Operations—Details on page 2		
Net Sales	4,007,000	4,190,000
Pre-tax Profit	1,252,000	1,493,000
% to net sales	31.2%	35.7%
Net Profit	601,000	717,000
% to net sales	15.0%	17.1%
% return on net investment	10.2%	12.7%
Percent Return on Gross Investment	8.1%	10.1%
Add Back: Depreciation	390,000	372,000
Cash Profit	991,000	1,089,000
Cash recovery rate	7.5 yrs.	6.6 yrs.

[fol. 2521] Penn-Olin Chemical Company

Economic Evaluation
August 15-16, 1960

Particulars	PennOlin 1965 Eco. Eval.	Revised 8-22-60
Net Sales	4,007,000	4,190,000
Product Cost		
Material	421,000	394,000
Steam	152,000	152,000
Electricity	768,000	768,000
Water	19,000	19,000
Labor	158,000	158,000
Supplies	23,000	23,000
Depreciation	390,000	372,000
Insurance	8,000	8,000
Taxes	18,000	18,000
Repairs	188,000	188,000
Overhead	160,000	160,000
Incremental Cost—Material and Power for 26,500 T/Y	—	84,000
Pennsalt General and Technical Service	52,000	52,000
Containers (and container labor)	113,000	—
Product Cost	2,470,000	2,396,000
Gross Profit	1,537,000	1,794,000
% to net sales	38.4%	42.8%
Expenses		
Shipping—Tank Car Rental	45,000	50,000
Advertising, Selling, Administrative, Research, State Taxes 6%	240,000	251,000
Expenses	285,000	301,000
% to net sales	7.1%	7.2%
Operating Profit	1,252,000	1,493,000
Pre-Tax Profit	1,252,000	1,493,000
% to net sales	31.2%	35.7%
Federal Taxes	651,000	776,000
Net Profit	601,000	717,000
% to net sales	15.0%	17.1%

[fol. 2522] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 45

Olin Mathieson Chemical Corporation

Date: November 9, 1960.

To: Mr. J. L. Pickens at Baltimore, Md.
From: George H. Nusloch, II at New Orleans, La.
Subject: Sodium Chlorate, New Orleans Territory

Copy To: J. G. McMullen,
J. M. Naughton,
W. A. Stone.

The following is a brief summary of consumers in the New Orleans territory:

International Paper Company—It is understood that Messrs. Drummond and Johns were able to conclude negotiations for ⅓ of the total tonnage in the Southern Kraft Division for 1961. Their total consumption is estimated at approximately 15,000 tons.

Crossett Paper Company—Consumption is estimated at 1400 tons per year supplied by Hooker and Solvay (shipped by American Potash). My efforts in obtaining a position for 1961 to date are not encouraging, but a visit with Mr. J. C. Hair, General Manager, is scheduled for November 11, 1960, in the company of W. W. Northgraves. Report on that call will follow. Promised a couple of cars.

Gulf States Paper Corporation, Demopolis, Alabama—Estimated consumption 1400/1500 tons and we are optimistic of getting a position in 1961. Our obstacles are

1. We are supplying 70% of barge liquid caustic soda and a little over 80% of chlorine to this mill.
2. Purchasing of chlorate is being handled by the Demopolis mill personnel and not by the head Purchasing Agent in Tuscaloosa.

Caustic and Chlorine is handled by Tuscaloosa purchasing office. Currently we believe that we can expect about 300 tons in 1961.

Ought to have 500T or more.

Container Corporation of America—We estimate chlorate consumption at 2,000 tons per year. Whereas we received mild encouragement on the local level, it has been emphasized that the central purchasing office in Chicago will have to approve changes in the present supplier. We feel certain that the Brewton people will recommend us for a small portion in 1961.

Marathon Division American Can—Estimated consumption 1200 tons per year. We were informed that contracts for chemicals of this nature are being more and more controlled by the Menasha, Wisc. office and we have notified our Chicago office of this situation. The local purchasing agent stated that he personally did not feel the need of another supplier, but that if Solvay is no longer going to represent American Potash, the door might be open for us to pick up that tonnage since there was no obligation to American Potash.

Crown Zellerbach Corporation, Bogalusa Division—Estimated consumption 300 tons per year. O. J. Theobald and I were turned down for a position in 1961 due to the fact that their consumption is so very low at the present. Since we were also pressing for caustic, chlorine, and ash business and were successful, we took the position that we best wait until their consumption grows to more significant quantities. This is not expected to take place in 1961.

[fol. 2523] *Scott Paper Company*—It is hard to accurately estimate 1961 requirements because of the expansion which is anticipated on stream during the second quarter 1961. The minimum tonnage of 1500 seems logical. We have a reasonably firm commitment that our 1961 participation will be greater than 1960. We are hoping that this will be as much as 400 tons.

St. Regis Paper Company—Estimated consumption 750 tons. New York office has primary responsibility for

this account, but we will be happy to help out with our local contacts in any way possible.

General:

The following are reactions which we have noted from our calls:

1. Hooker enjoys an excellent reputation for delivery, dependability, and Technical Service.
2. Consistent reluctance to place major tonnage for shipment from the West Coast.
3. No serious problems regarding inadequate storage facilities, inefficient unloading practices or faulty equipment from the present supplier.
4. We get the impression consistently that some small business will be placed with us in 1961, but we will not be a major supplier until our production is on stream.

Further developments will be reported,

Very truly yours, George H. Nusloch, II.

[fol. 2524] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXHIBIT 49

Plaintiff's Answers To Interrogatories

1 - 4 (Set II)

1. Has plaintiff or anyone acting on behalf of plaintiff obtained a written or oral report, statement, memorandum, data, information or testimony relating to this litigation or to plaintiff's investigation preceding this litigation from any past or present director, officer, employee or agent of any of the following (except defendants herein):

a. Any past or present competitor of any of defendants;
b. Any past or present purchaser of any product from, customer of, or distributor for any of defendants;
c. Any producer or seller of chemicals;
d. Any past or present producer, distributor, user, buyer

or seller of sodium chlorate, sodium chlorite, chlorine dioxide, ammonium perchlorate, potassium chlorate, chlorine, caustic soda, ammonia, hydrofluoric acid, calcium hypochlorite, muriatic acid or sulphuric acid;

e. Arthur D. Little, Inc.; or

f. Any market research, chemical research, research and development, equipment manufacturing, transportation, construction or engineering firm, or public or private carrier.

2. Has plaintiff or anyone acting on behalf of plaintiff obtained a written or oral report, statement, memorandum, data, information or testimony relating to this litigation or to plaintiff's investigations preceding this litigation from anyone other than the persons listed in Interrogatory 1 above (except defendants herein).

3. Has plaintiff or anyone acting on behalf of plaintiff in connection with this litigation interviewed or obtained a written or oral report, statement, memorandum, data, information or testimony relating to this litigation or to plaintiff's investigation preceding this litigation from any former director, officer or employee of any of defendants.

[fol. 2525] 4. As to each statement, interview, report, memorandum, data, information or testimony referred to in Interrogatories 1 and 3 above, state:

a. The name, business address and position of each person from whom it was obtained;

b. The name, business address and position of each person who obtained it;

c. The date on which it was obtained; and

d. Its present location.

1-4. Plaintiff has obtained information from numerous persons falling within one or more of the categories specified in items 1-3 of defendants' interrogatories. Plaintiff's informants and the nature of the information received are set forth below.

a. Letters to the Assistant Attorney General, Antitrust Division, were received from the following companies and are available for inspection upon request at Room 3414, Department of Justice, Washington, D. C.:

J. T. Baker Chemical Co.
Berkshire Chemical, Inc.

Chipman Chemical Co.
Globe Chemical Co.
Goldwynne Chemicals Corp.
Charles Hardy, Inc.
Harshaw Chemical Co.
International Selling Corp.
[fol, 2526] Kraft Chemical Co.
Pacific Engineering and Production Co.
Philipp Brothers Chemicals, Inc.
Reade Manufacturing Co.
E. M. Sergeant Pulp & Chemical Co.
Weyerhaeuser Company

b. Interviews by agents of the Federal Bureau of Investigation, at the direction and under the supervision of counsel for the plaintiff, were conducted with the following companies and individuals on the dates shown:

(1) Pittsburgh Plate Glass Co.
1 Gateway Center
Pittsburgh, Pennsylvania
By Cyrus V. Anderson, Associate General Counsel

June 12 and 26, 1961

(2) Allied Chemical Corporation
61 Broadway
New York, N. Y.
By L. A. Coleman, General Counsel

June 19, 1961

(3) Wyandotte Chemicals Corp.
1609 Biddle
Wyandotte, Michigan
By William R. Day, Secretary and General Counsel, and George F. Sharrard, Director, Marketing Research Department

June 12, 1961

(4) Virginia Chemical & Smelting Co.
West Norfolk, Virginia
By A. K. Scribner, President

June 12, 1961

(5) Arthur D. Little, Inc.
30 Federal Street
Boston, Massachusetts
By William H. Gulliver, attorney

June 13, 20, 22, 1961

[fol. 2527] (6) Russell W. Sloan
1135 South Wilson Drive
Lake Forest, Illinois

June 13, 1961

(7) Fred C. Shanaman, Sr.
26 Country Club Drive
Tacoma, Washington

June 30, 1961

Reports of interviews with the foregoing persons are not subject to production under any discovery rule. Documents furnished to the plaintiff by Allied Chemical Corporation, Virginia Chemical & Smelting Co. and Arthur D. Little are available for inspection upon request at Room 3414, Department of Justice. A document furnished by Wyandotte Chemicals Corp. on a confidential basis is available, by consent of William R. Day, Secretary and General Counsel, for inspection by defendants' counsel only.

c. Interviews of and correspondence with Hooker Chemical Corporation, 666 Fifth Avenue, New York, N. Y. (Ansley Wilcox 2d, Vice-President and General Counsel) and American Potash & Chemical Corporation, 3000 West Sixth Street, Los Angeles 54, California (Robert B. Coons and R. J. Heller, Vice-Presidents) were had between October 1960 and August 1961. The interview reports are not subject to production under any discovery rule. Documents submitted to the plaintiff by Hooker and American Potash were furnished on a confidential basis upon the understanding that no disclosure would be made outside the Department of Justice except pursuant to court order. Conferences have [fol. 2528] been arranged by defendants to be held on October 10, 1961 between counsel for all parties and representatives of American Potash and Hooker for the purpose of determining the extent to which those companies will

consent to examination and use of their documents. The American Potash and Hooker documents will be available for inspection at Room 3414, Department of Justice, upon consent of those companies or order of the court.

d. In addition, plaintiff has received information relating generally to sodium chlorate, ammonium perchlorate and miscellaneous subjects from clipping files of the Department of Commerce, files of the Tariff Commission, various personnel of the Departments of Commerce and Defense, and numerous issues of the Wall Street Journal, The New York Times, Chemical Week, the Oil, Paint & Drug Reporter, and other publications. The notes and reports made by plaintiff's counsel and staff from examination of these miscellaneous sources of information are not subject to production under any discovery rule.

[fol. 2529] [File endorsement omitted.]

[fol. 2530] IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

UNITED STATES OF AMERICA, Plaintiff

v.

PENN-OLIN CHEMICAL COMPANY, OLIN MATHIESON CHEMICAL CORPORATION AND PENNSALT CHEMICALS CORPORATION, Defendants.

OPINION—May 1, 1963

Alexander Greenfeld, Esquire, and Leonard G. Hagner, Esquire, District of Delaware, Wilmington, Delaware; Daniel J. Freed, Esquire, and Edward A. Copley, Esquire, Justice Department, Antitrust Division, Washington, D. C., attorneys for United States of America.

William S. Potter, Esquire (Berl, Potter & Anderson), Wilmington, Delaware, for all defendants; H. Francis De-

Lone, Esquire, and John T. Subak, Esquire (Dechert, Price & Rhoads), Philadelphia, Pennsylvania, attorneys for Pennsalt Chemicals Corporation; Albert R. Connelly, Esquire and John W. Barnum, Esquire (Cravath, Swaine & Moore), New York City, attorneys for Olin Mathieson Chemical Corporation.

[fol. 2531] The Government has brought a civil action against Penn-Olin Chemical Company (Penn-Olin), Olin Mathieson Chemical Corporation (Olin), and Pennsalt Chemicals Corporation (Pennsalt), in which it seeks to prevent and restrain them from allegedly continuing to violate Section 1 of the Sherman Act, 15 U.S.C. § 1, and Section 7 of the Clayton Act, 15 U.S.C. § 18.[1]

[fol. 2532] The primary attack of the Government is

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[1] Section 1 of the Sherman Act provides in pertinent part:

> "Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several states . . . is declared to be illegal."

Section 7 of the Clayton Act reads in pertinent part:

> "No corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.
>
> . . . . . .
>
> "This section shall not apply to corporations purchasing such stock solely for investment and not using the same by voting or otherwise to bring about, or in attempting to bring about, the substantial lessening of competition. Nor shall anything contained in this section prevent a corporation engaged in commerce from causing the formation of subsidiary corporations

directed against a joint venture between Pennsalt and Olin, pursuant to which they jointly organized and have controlled Penn-Olin for the purpose of having it construct a plant at Calvert City, Kentucky to produce and sell sodium chlorate. The Government charges that the effect of the joint venture and of the action of the parties thereunder may be to substantially lessen competition and tend to create a monopoly not only in sodium chlorate, but also in other non-chlorate chemicals, in violation of Section 1 of the Sherman Act and Section 7 of the Clayton Act. By an amendment to its complaint the Government has also charged that agreements between Pennsalt and Olin entered into in December 1957 and February 1958, denominated, respectively, the "sales agreement" and the "production agreement", restrain trade and commerce in sodium chlorate in violation of Section 1 of the Sherman Act.

Jurisdiction

The Court has jurisdiction over the person of each defendant, and by virtue of Section 15 of the Clayton Act, 15 U.S.C. § 25, and Section 4 of the Sherman Act, 15 U.S.C. § 4, it has jurisdiction over the subject matter of the action.

[fol. 2533]

The Defendants

Pennsalt is a Pennsylvania corporation with its principal place of business in Philadelphia, Pennsylvania. It is a chemical company engaged in the production and sale of about 400 chemicals and chemical products, at fifteen plants located in eleven states as follows:

Alabama	Ohio
California	Oregon
Georgia	Pennsylvania (2 plants)
Illinois	Texas (3 plants)
Kentucky (2 plants)	Washington
Michigan	

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for the actual carrying on of their immediate lawful business, or the natural and legitimate branches or extensions thereof, or from owning and holding all or a part of the stock of such subsidiary corporations, when the effect of such formation is not to substantially lessen competition."

Pennsalt's nationwide sales operations are conducted from its headquarters in Philadelphia and from 18 regional offices located in 13 states as follows:

Alabama	Ohio (2 offices)
California (3 offices)	Oregon
Georgia	Pennsylvania
Illinois (2 offices)	Texas (2 offices)
Michigan	Washington
Missouri	Wisconsin
New York	

Pennsalt has been engaged in the chemical business for over 110 years. In 1960 its sales amounted to over $90,000,000 on which it earned almost $5,000,000. During the same year, its assets were approximately $90,000,000. Since 1958 it has been engaged in a $55,000,000 capital investment program for the modernization and expansion of existing facilities and the construction of new ones.

[fol. 2534] Olin is a corporation organized under the laws of Virginia with its principal place of business in New York City, It is a diversified industrial corporation. The Chemical Division is one of seven operating divisions, and accounts for approximately 30% of the corporation's operating revenues. Olin's Chemicals Division produces a great number and variety of chemicals and chemical products from plants located in 15 states as follows:

Alabama	Mississippi
Arizona	Nebraska
Arkansas	New York
Georgia	North Carolina
Illinois	Pennsylvania
Kentucky	Texas
Louisiana	Virginia
Maryland	

Olin was formed in 1954 by the merger of Olin Industries, Inc., and Mathieson Chemical Corporation. Olin's activity in the chemical business reaches back, through its predecessor, Mathieson Chemical Corporation, to 1892. In 1960 Olin had sales of $690,000,000, on which it earned a net profit of $35,000,000. Its assets during that year amounted

to $860,000,000. During 1960 its capital expenditures were almost $49,000,000. Net sales of its chemical division in 1960 amounted to $217,000,000.

Penn-Olin is a Delaware corporation which was organized on February 25, 1960 by Olin and Pennsalt pursuant to [fol. 2535] a joint venture agreement between them dated February 11, 1960. Pennsalt and Olin each own one-half of Penn-Olin's capital stock. The officers of Penn-Olin are divided equally between officers of Pennsalt and officers of Olin. The board of directors of Penn-Olin is comprised equally of representatives of Pennsalt and those of Olin. Penn-Olin has no officers, directors or employees who are not concurrently employed by either Pennsalt or Olin. Penn-Olin constructed a plant at Calvert City, Kentucky at a cost of $6,454,000, for the production of 26,500 tons of sodium chlorate per year. It commenced production on September 1, 1961. By agreements executed in October 1961, dated as of January 2, 1961, Pennsalt undertook to operate the Penn-Olin plant and Olin agreed to sell its output.

All of the defendants are engaged in interstate commerce.

The Asserted Illegality of the Joint Venture

The Government claims that each of the defendants was engaged in interstate commerce at the time when Pennsalt and Olin acquired the stock of Penn-Olin, that the acquisition of such stock was tantamount to an indirect acquisition by Pennsalt and Olin of the assets of the other at a [fol. 2536] time when each was subject to the jurisdiction of the Federal Trade Commission, and that the joint venture and the actions taken thereunder may result in a substantial lessening of competition in one or more sections of the country, or tend to create a monopoly, in sodium chlorate and *and* other non-chlorate chemicals. For these reasons it is charged that Section 7 of the Clayton Act has been violated. The Government also charges that regardless of whether the joint venture involved an acquisition of stock or assets banned by Section 7 of the Clayton Act, it nevertheless constituted a combination in restraint of trade in violation of Section 1 of the Sherman Act.

The defendants deny the anticompetitive or monopolistic

effect of the joint venture and assert that competition in the manufacture and sale of sodium chlorate has been increased by Penn-Olin entering the field. Defendants also contend that Section 7 of the Clayton Act is without application because, defendants say, Penn-Olin was not engaged in commerce when its stock was acquired by Olin and Pennsalt, and neither Olin nor Pennsalt acquired any interest in the assets of the other when they acquired Penn-Olin stock.[2]

[fol. 2537] The last defense will not be discussed since, for the reasons hereafter stated, the joint venture did not have the anticompetitive effect at which Section 7 was aimed. The Sherman Act challenge will also be disregarded, for the anticompetitive standard imposed by Section 7 of the Clayton Act is less stringent than that of the Sherman Act. *Brown Shoe Co.* v. *United States*, 370 U.S. 294, 329 (1962).

Broadly speaking, the Section 7 issues to be resolved are whether the effect of the joint venture:

1. May be to substantially lessen competition or tend to create a monopoly;
2. In any section of the country;
3. In any line of commerce.

These questions will be discussed in inverse order:

The Relevant Lines of Commerce

The parties agree that two "line[s] of commerce" within the meaning of Section 7 of the Clayton Act are relevant

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[2] Defendants also argue that if these contentions are rejected, Penn-Olin must be regarded as a subsidiary of Olin and Pennsalt formed to carry on a lawful extension of their business, within the contemplation of the third paragraph of Sec-7 of the Clayton Act (the second paragraph of the Act quoted in footnote 1). Hence, it is argued that defendants have violated Section 7 only if the effect of Penn-Olin's organization "is" and not "may be" substantially to lessen competition. It is unnecessary to consider this point in view of the determination that the joint venture probably will not adversely affect competition.

to this case: sodium chlorate, and of the non-chlorates, calcium hypochlorite.[3]

[fol. 2538] Sodium Chlorate

Sodium chlorate is a white crystalline chemical. It is produced commercially by the electrolysis of an acidified solution of salt (sodium chloride). The process is closely akin to that used in the commercial production of chlorine and caustic soda. Sodium chlorate of like purity is a fungible commodity. Any which is produced for sale by a domestic producer is reasonably interchangeable with that of any other domestic producer.

In 1960 over 91,000 tons of sodium chlorate, valued at close to $18,000,000, were produced in the United States. The domestic production of sodium chlorate has increased greatly within the last ten years. From 1950-1955, the domestic production of sodium chlorate more than doubled, rising from 22,085 tons in 1950 to 46,972 tons in 1955. From 1950-1960, the production of sodium chlorate more than quadrupled, rising from 22,085 tons in 1950 to 91,900 tons in 1960.

In 1960, over 54,600 tons of sodium chlorate were produced east of the Rockies and 37,300 tons produced west. At the prevailing prices (9 cents per pound in the east and

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[3] The parties have stipulated: Olin and Pennsalt each produce and sell in commerce in the United States the following non-chlorates: ammonia, calcium hypochlorite, caustic soda, chlorine, hydrochloric acid, hydrofluoric acid and sulphuric acid. Competition, if any, in the sale of hydrochloric acid and sulphuric acid is *de minimus*. Olin and Pennsalt compete in the sale of the remaining five chemicals. Of these, calcium hydrochlorite has been selected as a "guinea pig" to determine whether the joint venture constitutes a violation of the antitrust laws in the case of non-chlorate chemicals. The presence or absence of substantial competition between Olin and Pennsalt with respect to the production and sale of ammonia, caustic soda, chlorine, and hydrofluoric acid or of the existence of any relevant market for such chemicals, is not relevant to the determination of any issue in the case.

[fol. 2539] 10½ cents per pound in the west), eastern production was valued at over $9.8 million while western production amounted to $7.8 million.

The largest consumer of sodium chlorate is the pulp and paper industry. That industry uses sodium chlorate in the bleaching of pulp for brighter, higher quality paper. The pulp and paper manufacturers use sodium chlorate as a principal raw material to generate chlorine dioxide, a gaseous material which possesses the unique ability to bleach cellulose fibers to a maximum whiteness with little or no loss of fiber strength. In 1958 70,541 tons of sodium chlorate were used commercially in the United States. Of this, 29,000 tons, or 41.1%, were used in pulp and paper bleaching. The next largest amount, 16,100 tons, or 22.8%, was used for herbicides (weed control). In 1960, the national shipments amounted to 81,928 tons of which 52,415, or 64%, were for pulp and paper mill consumption. Of the 47,036 tons shipped into the southeast in 1960, 39,563 tons, or 84%, were consumed by pulp and paper mills.

The recent growth of the sodium chlorate market is largely due to the adoption and rapid expansion of chlorine dioxide bleaching in the pulp industry.

In addition to its use by the pulp and paper industry, sodium chlorate is also used in agricultural chemicals [fol. 2540] (herbicides and defoliants) and in the production of ammonium perchlorate and other derivatives.

Since 1953 and prior to Penn-Olin, three producing companies, or their predecessors, have constituted the sodium chlorate industry in the United States: Hooker Chemical Corporation (Hooker), American Potash & Chemical Corporation (AmPot), and Pennsalt. Imports of sodium chlorate, stipulated to have been not substantial, have been as follows:

1956	892 tons
1957	335 tons
1958	1,322 tons
1959	2,596 tons
1960	4,152 tons

Hooker is the largest producer and seller of sodium chlorate in the United States. In 1956 Hooker acquired Oldbury Electro Chemical Company (Oldbury) which had produced sodium chlorate at Niagara Falls, New York since

about 1900 and which, in 1954, had constructed a plant in Columbus, Mississippi to meet the growing demand for sodium chlorate in the southeast. At the time when Oldbury constructed its Columbus plant, it had no other facilities or activities at or near Columbus. The capacity of Hooker's Columbus plant was increased in 1956, 1958 and 1960; the capacity of the Niagara Falls plant was decreased in 1961. The capacity of Hooker's two plants has been as follows:

[fol. 2541]

	Niagara Falls	Columbus
1957	12,000 tons	17,435 tons
1958	12,000 tons	21,340 tons
1959	12,000 tons	29,150 tons
1960	18,000 tons	32,000 tons
1961	14,000 tons	32,000 tons

In 1960 Hooker had assets of $187,000,000 and net sales of $150,000,000.

AmPot is the second largest producer and seller of sodium chlorate in the United States. It entered the business in November 1955 by acquiring Western Electro Chemical Company (Western). The latter had a single plant at Henderson, Nevada, where it had produced sodium chlorate since 1941. In February 1957 AmPot authorized construction of a sodium chlorate plant at Aberdeen, Mississippi to meet the growing demand in the southeast, and to compete effectively in that market with Hooker's Columbus, Mississippi plant. AmPot has twice expanded the capacity of the original Aberdeen plant. The capacity of the two AmPot plants has been as follows:

	Henderson	Aberdeen
1957	27,000 tons	—
1958	27,000 tons	—
1959	27,000 tons	12,000 tons
1960	27,000 tons	15,000 tons
1961	28,000 tons	22,500 tons

In 1959 the total assets of AmPot were $73,000,000 and its net sales in that year were $50,500,000. AmPot uses the Solvay Process Division of Allied Chemical and Dye Corporation (Allied Chemical) as its sales agent for sales [fol. 2542] of sodium chlorate to the pulp and paper and textile industries. Allied Chemical is a leading producer and seller of chemicals in the United States. Allied Chem-

ical uses its large sales force and large technical service facilities and the Solvay process for generating chlorine dioxide in selling sodium chlorate produced by AmPot. In 1960 Allied Chemical had assets of $801,000,000 and sales and operating revenues of $766,000,000.

When AmPot's sodium chlorate plant at Aberdeen went on stream, Solvay was almost entirely responsible for selling the output of that plant. Today, the direct selling of the Aberdeen sodium chlorate output is largely AmPot's responsibility. AmPot contributes approximately 70% of the direct selling effort.

The percentages of sodium chlorate sales made by Hooker and AmPot in 1960 were as follows:

	U.S.	East of Rockies	Southeast
Hooker	45.9%	54.6%	49.6%
American Potash	35.6%	37.9%	41.7%
Totals	81.5%	92.5%	91.3%

Pennsalt has produced sodium chlorate at Portland, Oregon since 1941 which it has sold principally west of the Rockies. The following tabulation sets forth its initial productive capacity at Portland and its expansion of that [fol. 2543] plant to date:

	Tons Per Year
October 1941	2,194
October 1942	3,448
January 1943	4,248
December 1949	5,448
February 1954	7,848
October 1957	12,392
October 1959	15,392

Until the early 1950's Pennsalt's sales of sodium chlorate were principally for herbicidal use and virtually no sales were made to pulp and paper mills. At that time Solvay, which was selling sodium chlorate produced by AmPot, began offering its chlorine dioxide process to the pulp and paper industry conditioned upon the user purchasing its sodium chlorate requirements exclusively from Solvay. This led Pennsalt, in mid-1953, to enter into an agreement with Mathieson under which Pennsalt was permitted to install the Mathieson process in all the paper mills in the north-

west.[4] After this occurred, Solvay was never again successful in putting in its process in the northwest, and by 1960 Pennsalt had attained 100% of the sodium chlorate business of the western pulp and paper industry.

In July 1961 a fourth company, Pittsburgh Plate Glass Company (PPG), announced that it would construct a [fol. 2544] 15,000 ton per year sodium chlorate plant at Lake Charles, Louisiana. PPG is a large, diversified industrial corporation which produces and sells chemicals through its Chemical Division, formerly a subsidiary company, Columbia Southern. PPG has large technical service, sales, market research, and laboratory forces already serving the southeastern pulp and paper industry. In 1960 PPG had total assets of $625,000,000 and net sales of $628,000,000.

A fifth company, Pacific Engineering & Production Company of Nevada (Pacific), with the aid of a loan of $2,400,000 from American Cyanamid Company, is constructing at Henderson, Nevada a sodium chlorate plant with a capacity of 5,000 tons per year to commence production late in 1962. For its loan American Cyanamid received a promissory note of Pacific secured by deed of trust on all of Pacific's assets, an option to receive license on Pacific's processes, and an option to acquire all the assets of Pacific or 50% of its common stock. American Cyanamid is a leading producer and seller of chemicals in the United States.

Olin has never manufactured sodium chlorate for sale or been an independent seller of it. For years, however, it and its predecessor Mathieson has manufactured sodium chlorite which was sold to pulp and paper mills. The sodium chlorite, when dissolved in an acid solution by the mills, generated chlorine dioxide which the mills used as a bleach-[fol. 2545] ing agent for the pulp.[5] The raw material used

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[4] See footnote 5.

[5] As a result of research which Mathieson did in chlorine dioxide, it developed the so-called Mathieson process for generating chlorine dioxide to bleach pulp without damaging the fibers. The process was designed to sell sodium chlorite as a new commercial chemical.

While the process of releasing chlorine dioxide from

in the manufacture of sodium chlorite is sodium chlorate. In the early 1930's Mathieson produced sodium chlorate chemically for its own use in manufacturing sodium chlorite. During the late 1930's it stopped manufacturing sodium chlorate and turned to buying it. Approximately 5,000 tons of sodium chlorite are sold in the United States annually. Olin is the only domestic producer and 1960 was its best year.

Calcium Hypochlorite

Calcium hypochlorite, like sodium chlorate, is used in the production of pulp and paper. There are three important competitors in calcium hypochlorite: Olin, Pennsalt, and PPG.

In 1959 Pennsalt and Olin together accounted for $6,480,000 sales, or 88.8% of all calcium hypochlorite sold in the [fol. 2546] United States. Their respective market shares were:

Olin	62.4%
Pennsalt	26.4%

In 1960 Pennsalt and Olin accounted for 76.6% of the $6,900,000 sales of calcium hypochlorite throughout the United States. Ninety-nine percent of each company's sales were made in 43 states where both sold the product.

The competition between Olin and Pennsalt in the sale of calcium hypochlorite is substantial.

The Relevant Market

Section 7 of the Clayton Act is aimed at a substantial lessening of competition in "any section of the country", or as

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sodium chlorite is relatively easy and inexpensive compared to the generation of chlorine dioxide from sodium chlorate, in large scale production there is a three to one cost advantage in bleaching with chlorine dioxide made from chlorate instead of chlorite. This led Olin to realize that sodium chlorate would soon become the raw material for the process. In the early 1950's therefore Olin began to make its chlorine dioxide generation process available free to pulp and paper industry.

the statute is frequently paraphrased, in any relevant market. Whether a given transaction may substantially lessen competition depends upon its probable effect in a relevant market. *Tampa Electric Co.* v. *Nashville Coal Co.*, 365 U.S. 320, 329 (1961). The delineation of a relevant market is therefore a necessary predicate for determining the anti-competitive effect of any transaction challenged under Section 7. *Brown Shoe Co.* v. *United States, supra*, p. 335.

Calcium Hypochlorite

In calcium hypochlorite the parties agree that the national market is the relevant one.

[fol. 2547] Sodium Chlorate

The parties likewise agree that there is a relevant southeastern market in sodium chlorate, and although they define this market somewhat differently, the difference is not significant.[6]

But here agreement ends. The Government claims that there are two other relevant markets: the national market and the eastern market.

The national market, as the name implies, embraces the entire continental United States, except Alaska. The finding of a national market is important in the Government's view because it is said to put Pennsalt, Olin and Penn-Olin in the same area, to establish that Pennsalt and Olin should have been actual competitors, as a matter of law, at the time of Penn-Olin's creation, and to determine that Pennsalt and Penn-Olin were actual competitors, as a matter of

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[6] The Government asserts that the southeastern market includes Alabama, Arkansas, Florida, Georgia, Kansas, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia. Defendants say that Kansas, Missouri and West Texas should be excluded. According to the Government, the exclusion of these two and one-half states makes scant difference. Consequently, in the following discussion Kansas and Missouri will be excluded, but the whole of Texas will be included. No evidence warrants splitting Texas and much of the evidence bearing upon competition treats it as an entity.

law, following Penn-Olin's creation. Defendants deny that a national market exists.

[fol. 2548] The eastern market is defined as the entire United States east of the Continental Divide. It excluded only the states lying west of the Rocky Mountains, viz, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. Defendants say that the statistical analysis of the competitive effect of Penn-Olin is the same regardless of whether the eastern or southeastern market is deemed to be relevant, and that it is immaterial whether there is a relevant eastern market. This position, asserted both in defendants' brief and at the argument, was not controverted by the Government. It has made no effort to show a difference, significant in antitrust law, between the competition effect of the challenged transactions in the so-called eastern as against the southeastern market. The Court does not therefore feel called upon to make an independent analysis of the problem. So the issue is the narrow one whether the southeast is the only relevant market, or whether there is a relevant nationwide market as well.

A market is relevant in determining whether a given transaction may substantially lessen competition only if it is an area of effective competition. *Standard Oil Co.* v. *United States*, 337 U.S. 293, 300, n. 5 (1949); *United States* v. *Maryland Virginia Milk Producers Ass'n.*, 167 F.Supp. 799, 802 (D. D.C. 1958), aff'd 362 U.S. 458 (1960). The two [fol. 2549] terms—area of effective competition and relevant market—are synonymous. *Tampa Electric Co.* v. *Nashville Coal Co.*, *supra*, p. 328.

Whether a geographic location is or is not an area of effective competition in a given case is a question of fact. Congress prescribed a pragmatic, factual approach to the definition of the relevant market and not a formal legalistic one. The geographic market in which the anticompetitive effect of a transaction is to be tested must both correspond to the commercial realities of the industry and be economically significant. *Brown Shoe Co.* v. *United States*, *supra*, pp. 336-337 (1962). It can be defined only in the light of the overall objectives of Section 7 and with particular recognition that it is being defined for the purpose of determining the reasonable probability of substantially lessening

competition. *United States* v. *Bethlehem Steel Corp.*, 168 F.Supp. 576, 588 (S.D.N.Y. 1958).

When Pennsalt and Olin entered into the joint venture, there were only three companies in the United States which produced sodium chlorate for sale commercially: Hooker, AmPot and Pennsalt. Pennsalt had only one plant. It was on the west coast at Portland, Oregon. Hooker had two plants, both in the east. One was at Niagara Falls, New York, and the other at Columbus, Mississippi. AmPot had two plants—one in the east at Aberdeen, Mississippi, and [fol. 2550] the other in the west at Henderson, Nevada. The Mississippi installations of AmPot and Hooker were both in the southeastern market.

The southeastern market was the one in which there was the heaviest concentration of sodium chlorate buyers.[7] Of the buyers, the pulp and paper mills were far and away the largest.[8] Plants having almost half of the national sodium chlorate productive capacity were also located in the southeast.[9]

After the southeast, the largest concentration of buyers and the largest productive capacity were in the 11 states west of the Rocky Mountains.[10]

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[7] Out of 82,094.70 tons shipped in 1960 within the United States, 47,035.76, or 57.3%, went to the southeastern market. Of the remainder, 18,152.72 tons, or 22.2% were shipped west of the Rockies, and the balance of 16,906.22, or 20.5%, went elsewhere.

[8] In 1960, of the 47,035.76 tons of sodium chlorate shipped to southeastern buyers, 39,562.83 tons, or 84.1%, were purchased by the pulp and paper industry. The amount so purchased represented 75.5% of the 52,415.03 tons purchased by all of the pulp and paper mills in the United States.

[9] As against the 1960 national productive capacity of 107,434 tons, plants having a tonnage capacity of 47,000 tons were in the southeast, viz, Hooker at Columbus, Mississippi with 32,000 tons, and AmPot at Aberdeen, Mississippi with 15,000 tons. The capacity of the latter was increased to 22,500 in December 1960.

[10] See footnote 7 as to buyer concentration. The productive capacity of the Pennsalt plant at Portland was 15,434

[fol. 2551] In 1960, therefore, the two most important markets in the United States, both from the standpoint of consumption and production, were first, the southeastern market, and second, the western market. Of foremost importance in determining whether there was a nationwide relevant market is the question whether western shippers could compete effectively in the southeast, and southeastern producers could compete effectively in the 11 western states. Unless they could, there was no relevant national market.

Normally of vital importance to competitive effectiveness are quality, price and service. So far as appears, neither AmPot, Hooker or Pennsalt enjoyed any advantage over the other in the quality of its product. From the standpoint of both price and service, Pennsalt was at a decided disadvantage, as against AmPot and Hooker, in supplying buyers in the southeast.

Pennsalt's price disadvantage resulted from the cost of transportation which it had to bear. To be competitive in the southeast, Pennsalt was faced with the necessity of absorbing the difference between the freight from its Portland plant and the buyer, and the freight between the buyer and the closest southeastern supplier. The freight disadvantage to AmPot in shipping a ton of sodium chlorate into the southeastern market from Henderson, Nevada as against shipping it from Aberdeen, Mississippi was ap-[fol. 2552] proximately $25 to $30 a ton. This represented about 15% of the delivered price of $163 a ton. The freight disadvantage to Pennsalt was even greater.

A competitive price disadvantage arising from transportation costs is an important factor in determining the scope of a relevant market. *United States* v. *Columbia Steel Co.*, 334 U.S. 495 (1948), reh. den. 334 U.S. 862 (1948); *American Crystal Sugar Co.* v. *Cuban-American Sugar Co.*, 152 F.Supp. 387, 398 (S.D.N.Y. 1957), aff'd 259 F.2d 524 (2d Cir. 1958); *Erie Sand & Gravel Co.* v. *F.T.C.*, 291 F.2d 279, 281-282 (3d Cir. 1961). The record fails to suggest that Pennsalt was in a position to surmount or equalize its

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tons and that of AmPot at Henderson was 27,000 tons, making a total of 42,434 tons, as against the total national productive capacity of 107,434 tons.

freight disadvantage because of lower operational costs, or otherwise.

Remoteness from southeastern buyers also placed Pennsalt at a service disadvantage. To pulp and paper manufacturers prompt delivery is a matter of importance. Delivery time for a shipment from Mississippi to the southeastern market is normally two to four days. Shipments from the northwest take ten to fourteen days. The chances of shipping delays increase as the distance between supplier and customer becomes greater. When Olin was acting as selling agent for Pennsalt under the December 1957 contract, Olin encountered buyer resistance because Pennsalt's production was located at a substantial distance from the market.

[fol. 2553] In addition, a buyer wants an assured source of supply. A remote seller such as Pennsalt who is called upon to absorb substantial freight costs cannot be viewed as a stable source of supply. It will, in all likelihood, favor buyers in its own vicinity whenever the supply situation becomes tight. This would appear to be particularly true in the case of Pennsalt since for many years both the bulk price and the drum price of sodium chlorate has been higher west of the Rockies than east of the Rockies. This price differential of about 15%, coupled with the freight equalization with which Pennsalt is burdened, would, in times of short supply, naturally cause Pennsalt to favor west coast purchasers at the expense of buyers in the southeast. The proximity of productive facilities in terms of the availability to a buyer of service and supply is also important in the delineation of a relevant market. *Crown Zellerbach Corp.* v. *F.T.C.*, 296 F.2d 800, 817 (9th Cir. 1961), cert. den. 370 U.S. 937 (1962). See also *Tampa Electric Co.* v. *Nashville Coal Co.*, *supra*, pp. 331-333.

The disadvantages inherent in the distance of Pennsalt's plant from southeastern buyers prevented Pennsalt from effectively competing against suppliers with plants in that area. To Pennsalt, the southeast was not a "natural locus of distribution". *American Crystal Sugar Co.* v. *Cuban-*
[fol. 2554] *American Sugar Co.*, *supra*, p. 398. Pennsalt's proximity to pulp and paper manufacturers in the northwest made that market the natural distributional area for it. In

1960 Pennsalt supplied 100% of the sodium chlorate bought by pulp and paper manufacturers in the northwest.

The Government answers that Pennsalt's competitive handicaps are theoretical only. It argues that despite Pennsalt's natural, freight, or other burdens, it has hurdled all obstacles, and by its actual shipments across country has demonstrated its ability to effectively compete in the southeast. Theory, the Government says, is of little consequence as against the facts. *United States* v. *Bethlehem Steel Corp.*, *supra*, pp. 592, 599.

The Government points out that in 1960 Pennsalt shipped across country 4,877 tons of sodium chlorate, or 32% of its total shipments of 15,362 tons. The key factor which enabled Pennsalt to do this is said to have been the substantial excess of eastern demand over production.

Despite the Government's assertion of a substantial imbalance between supply and demand in the "eastern" market, none existed in the southeast. The total shipments of sodium chlorate to the southeast during 1960 was 47,035.76 tons. The total capacity of the southeastern plants was 47,000 tons; Hooker at Columbus, 32,000 tons; AmPot at [fol. 2555] Aberdeen, 15,000 tons. In 1960 the southeastern market was not a deficit area.[11]

In 1960 Pennsalt shipped into the southeastern market 4,186 tons, or 27% of its total shipments of 15,195 tons. Of these shipments, 3,203 tons were sold by Olin as agent for Pennsalt under their sales contract of December 1957.[12] Olin had long-standing contacts with many buyers as a result of other chemicals sold to them and enjoyed a unique good will because of having made the Mathieson process available without charge. The arrangement between Pennsalt and Olin was only temporary, and Pennsalt was losing $80,000 a year on the sales which Olin was making. Pennsalt's shipments of 3,203 tons in fulfillment of sales generated by Olin were of a special non-recurring kind. They

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[11] The supply situation was to be further improved in December 1960 when AmPot's capacity at Aberdeen was increased by 7,500 tons. This brought the total capacity of AmPot and Hooker in Mississippi up to 54,500 tons.

[12] This is discussed in detail at p. 60 et seq of this opinion.

cannot be considered as indicative of Pennsalt's effectiveness as an independent competitor in the southeast.

Apart from the 3,203 tons sold by Olin, Pennsalt shipped only 983 tons of sodium chlorate into the southeastern market.[13] The total shipments of sodium chlorate into the [fol. 2556] southeastern market in 1960 for all purposes was 47,035.76 tons. Of this, Hooker shipped 23,263.52 tons, or 49%, and AmPot shipped 19,586.24 tons, or 42%. Pennsalt's shipments of 3,203 tons under the sales agreement with Olin were 7%. The shipments which Pennsalt made in satisfaction of its own sales were 2%.

Furthermore, of the 983 tons shipped to the southeast by Pennsalt, independently of Olin, only 458.40 tons went to pulp and paper manufacturers.[14] This was 1% of the total tonnage of 39,562.83 which was shipped to the southeastern pulp and paper manufacturers in 1960. It compares with 18,127.71 tons, or 46%, shipped by Hooker, 17,556.72 tons, or 44%, shipped by AmPot, and 3,420 tons, or 9%, sold by Olin for Pennsalt.

In 1960 shipments of 7,472.93 tons of sodium chlorate were made to buyers, other than pulp and paper mills, in the southeast. The sales agreement which Pennsalt had with Olin left Pennsalt free to compete for this business. It succeeded in obtaining 525 tons, or about 7%.

Both in theory and in fact Pennsalt was not an effective competitor in the southeast.

[fol. 2557] In furtherance of its national market claim,

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[13] Of this amount, 363.5 tons went to Buckeye Cellulose Company, a subsidiary of Procter & Gamble. Since Buckeye owned its own freight cars which were used to transport the sodium chlorate from Portland to Florida, the railroad made an allowance to Buckeye covering the cost of returning the cars to the point of origin. This circumstance, which gave Buckeye a unique advantage in receiving shipments from the west coast, coupled with the fact that Procter & Gamble was an important customer for other products of Pennsalt, are the reasons why Pennsalt had the Buckeye account.

[14] This is 94.9 tons more than the 363.5 tons that went to Buckeye, the Pennsalt reserved account. It represents shipments to two other southeastern pulp and paper mills.

the Government points out that in 1960 AmPot shipped across country 8,808 tons of sodium chlorate from its Henderson, Nevada plant, or 64% of its total shipments of 13,767.82 tons from that plant. Of these "across country" shipments, 7,237 tons, or 52.6%, of the shipments from Henderson went into the southeast. But at the time AmPot's Aberdeen plant, with a productive capacity of 15,000 tons, was unable to take care of the total tonnage of 19,586.24 tons which AmPot supplied to southeastern buyers. In contrast, AmPot's Henderson capacity of 27,000 tons far exceeded the 9,586.55 tons demanded by AmPot's customers in areas outside the southeast. This dual imbalance between supply and demand at AmPot's two plants was intracorporate and temporary. It was rectified in December 1960 when AmPot increased its capacity at Aberdeen by 7,500 tons. It was AmPot's intention to satisfy the requirements of its customers in the southeast out of this [fol. 2558] increased capacity at Aberdeen and not from Henderson.[15] So that such shipments as AmPot made into the southeast from Henderson are not significant in determining whether a western shipper can effectively compete for business in the southeast.

So far as shipments from the southeast to the west are concerned, in 1960 AmPot made no shipment from its Aberdeen plant to buyers west of the Rockies.

Hooker's situation with respect to east-west shipments was different. Although in 1960 Hooker made no shipments to the west coast from its Niagara Falls plant, it shipped 2,708.35 tons from its Columbus plant to customers west of the Rockies. This was 14.9% of the 18,152.72 tons shipped into the area. It compares with 10,485 tons, or 57.8% shipped by Pennsalt from Portland and 4,959.37 tons, or 27.3% shipped by AmPot from Henderson. The 2,708.35 tons which Hooker shipped to buyers in the west represented 7% of the 37,559.91 tons which Hooker shipped from both Niagara Falls and Columbus.

At the time Hooker had excess productive capacity of

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[15] It could hardly be expected to do otherwise since the freight disadvantage in shipping from Henderson to the southeast, as against shipping from Aberdeen, was $25 to $30 a ton, or something in excess of 15% of the bulk sales price of $163 in the southeastern market.

magnitude. As against a total of 50,000 tons (Niagara [fol. 2559] Falls 18,000 tons, Columbus 32,000 tons) it shipped to all markets east of the Rockies only 34,851.6 tons, or 70% of its available capacity. Tonnage shipped from the Columbus plant to all markets east of the Rockies amounted to 26,478.23 tons leaving that plant with 5,521.77 tons at Columbus, or 20.9% of the plant capacity, to be disposed of. It was out of this excess that the 2,708.35 tons were supplied to the west. Of this, 1,920.65, or about ⅔, went to a single buyer, U. S. Borax Co., for herbicidal use.

The total shipments of AmPot and Hooker from their eastern facilities were 52,964.88 tons; viz:

Hooker Shipments Columbus and Niagara Falls	37,559.91
AmPot shipments Aberdeen	15,404.97
Total	52,964.88

Of this, the 2,708 tons which Hooker shipped to the west coast from its excess capacity at its Columbus plant, amounted to 5%. The east-west shipments by Hooker in 1960 were undoubtedly the result of a desire to keep its plants operating as close to capacity as possible when eastern buyers were not available.

Here, there is no indication that an imbalance between supply and demand, either nationally or locally, had been the industry norm over a period of years or that it will be in the future. This circumstance makes irrelevant *United States* v. *Bethlehem Steel Company, supra*, which held that in determining the relevance of a market, freight costs were [fol. 2560] only a marginal factor when an industry-wide imbalance between supply and demand had persisted through the years and reflected an industry pattern (pp. 598-599).

In sum, neither Pennsalt nor AmPot could compete effectively from their western plants for business in the southeast where the highest concentration of buyers was located. Nor could AmPot or Hooker, the two companies having eastern facilities, effectively compete for business on the west coast. In each case the competitive limitation was due to market remoteness. There was no national market for sodium chlorate in 1960 relevant to an ascertainment of the competitive impact of the joint venture.

The Effect of the Joint Venture on Competition in Sodium Chlorate

On the competition issue, the initial position of the Government is novel and far reaching. It contends that Pennsalt and Olin *could* have competed with each other since each was as financially able and otherwise competent to compete on an individual basis as other sodium manufacturers which were doing so. In these circumstances, it is said that the antitrust laws required Pennsalt and Olin to compete individually or to stay out of business.[16] Their [fol. 2561] attempt to compete jointly, through the medium of Penn-Olin, because of a desire for greater profitability and risk limitation, is therefore said to be violative of Section 7.

The Government thus lays aside as immaterial any consideration of whether, but for Penn-Olin, Pennsalt and Olin *would* have entered the market as individual competitors, or what the competitive *affect* of Penn-Olin may be in the light of relevant economic factors. Instead, it would substitute a conclusive presumption that *any* combination specified in Section 7 between companies having the overall capability to go into business alone has a pernicious effect [fol. 2562] on competition and lacks any redeeming virtue;

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[16] The Post Trial Brief of the Government states (p. 1):

> "This case involves a joint venture between two companies that could have competed."

The same brief states at p. 2:

> "The fundamental issue posed by the trial of this case is whether the anti-trust laws condemn the entry of competitors into business together when, except for subjective preferences based on profitability and risk, each could have done so alone."

The Government's reply brief states (p. 30):

> "When competitors and potential competitors have comparable resources and face similar hurdles, the anti-trust laws require that they meet these challenges on individual terms or not at all. They may compete or not as they please. But the option to compete or combine is forbidden."

it would make *any* such combination illegal *per se*. No precedent supports the Government's position and its lack of logic condemns it. Compare *United States* v. *E. I. Du-Pont de Nemours & Co.*, 118 F.Supp. 41, 219-220 (D. Del. 1953), aff'd 351 U.S. 377 (1956) which held that under the Sherman Act it is not illegal *per se* for actual competitors to combine by means of a joint venture, but that a determination of the unreasonableness of the restraint is essential to its illegality.

The real issue is whether, based upon relevant economic factors, the formation of Penn-Olin has resulted, or as a reasonable probability will result, in a substantial lessening of competition or tend to create a monopoly in sodium chlorate in the southeastern part of the United States.

Prior to the joint venture, Olin had never produced sodium chlorate for sale in any market area or during any period of time. Nor had it ever sold sodium chlorate except for the limited time when it acted as sales agent for Pennsalt under the December 1957 contract. It had never purchased for its own use sodium chlorate from Pennsalt. On the other hand, Pennsalt had been manufacturing and selling sodium chlorate since 1941 from its plant at Portland, Oregon. Its shipments into the southeastern market were competitively not substantial.

The creation of Penn-Olin did not represent a combination of companies which were competing in the manufacture and sale of sodium chlorate in the southeastern market or elsewhere. Nor did it represent a combination of companies [fol. 2563] standing in the relationship of supplier and customer in the southeastern market or elsewhere.[17] It was neither a vertical combination or a horizontal combination.[18]

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[17] Olin purchased sodium chlorate to use as a raw material in manufacturing sodium chlorite at its Niagara Falls plant. This sodium chlorate was purchased from Hooker's neighboring Niagara Falls plant. Pennsalt from its Portland plant could not have competed successfully with Hooker for Olin's business.

[18] When the arrangement is between companies standing in a supplier-customer relationship it is characterized as vertical; when between companies performing similar

Contrasted with these anticompetitive relationships which are frequently the subject of antitrust condemnation, the arrangement between Olin and Pennsalt was *sui generis*.

When Section 7 was amended in 1950 Congress was apprehensive of the rising tide of economic concentration as a dynamic force which it believed posed serious threats to the free enterprise system. One of the basic purposes of the 1950 amendment was to arrest in their incipiency combinations resulting in the concentration of power which would probably have the effect of jeopardizing to a substantial extent competition. *Brown Shoe Co.* v. *United States, supra,* pp. 315, 317.

The creation of Penn-Olin was not the typical case of one competitor menacing an industry by increasing its competitive power through the acquisition of another competitor. Penn-Olin was not the instrumentality through which two competitors sought to enlarge their economic power. [fol. 2564] Pennsalt and Olin were not competitors. Pennsalt was a company which had experience in the manufacture and sale of sodium chlorate in the far west. Olin was a company which had contacts of value with prospective customers in the southeast. Penn-Olin was the means by which the strength of the two companies was joined—not for the purpose of further pre-empting a market which they already occupied, but to break into a market to challenge the supremacy of two companies which were dominating it.

Those companies were Hooker and AmPot. In 1960 Hooker supplied 49.5% and AmPot furnished 41.6% of the requirements of buyers in the southeast. Pennsalt's share, independent of the quantity sold by Olin as its sales agent, was 2.1% and including Olin's sales, was 8.9%.

As for productive capacity, Pennsalt nationally was the smallest of the three companies. In 1960, Hooker had 50,000 tons, or 46.5%, AmPot 42,000 tons, or 39.1%, and Pennsalt 15,434 tons, or 14.4%. In the southeastern market, Hooker's plant at Columbus, Mississippi had a capacity of 32,000 tons, or 68%, of the total capacity in that market, and AmPot's 15,000 ton plant at Aberdeen possessed the remaining 32%. Pennsalt had no plant in the southeast.

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functions in the production or sale of comparable goods or services, it is said to be horizontal. *Brown Shoe Co.* v. *United States, supra,* pp. 323, 334.

When Penn-Olin goes on stream it can reasonably be expected to have an immediate effect on competitive condi- [fol. 2565] tions which theretofore existed. Thereafter, it is not to be supposed that Pennsalt will continue to make shipments to the southeast. What it otherwise might have supplied from Portland will be shipped by Penn-Olin from Calvert City. As an independent competitor in the southeast, Pennsalt will probably be finished. But the elimination of Pennsalt does not mean that competition will be substantially lessened within the intendment of Congress. Whether a combination described in Section 7 will have the anticompetitive effect forbidden by the Act, cannot be ascertained merely by looking at its effect upon the competitive activities of the combining companies. The critical determination is whether the combination substantially lessens competition *generally* in an economically significant market. *Brown Shoe Co.* v. *United States, supra,* p. 335. Pennsalt occupied only a relatively insignificant competitive position in the southeast. As will be later shown, the competitive benefits which derive from Penn-Olin entering the market far exceed any competitive loss resulting from Pennsalt's probable elimination.

The Government asserts that another immediate effect of the joint venture will be to make Olin a captive buyer of sodium chlorate from Penn-Olin and to deprive other suppliers of obtaining any of Olin's business. For some [fol. 2566] years Olin has been buying sodium chlorate at its Niagara Falls plant to use in the manufacture of sodium chlorate. Its requirements have been supplied by Hooker from its Niagara Falls plant.[19] While Olin's 50% ownership of Penn-Olin does not legally deprive Olin of the right to continue to buy from Hooker or anyone else, self-interest

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[19] Hooker's shipments to Olin have been as follows:

Year	Tons
1957	1,300
1958	1,100
1959	1,300
1960	1,350
1961 (6 mos.)	560

Larger quantities of sodium chlorate sold in the United States, but produced outside of the United States, from 1958 to 1960, have been stipulated not to be substantial.

might lead Olin to buy from Penn-Olin. But it cannot be said that as a matter of reasonable probability Olin will do so. Whether purchasing from Penn-Olin will be to Olin's *net* advantage depends upon a balancing of the advantage which will accrue to Olin as a stockholder of Penn-Olin as against freight and service disadvantages inherent in shipments from Calvert City instead of a "next door" supplier. The record gives no indication how Olin will evaluate these conflicting considerations. In any event, however disadvantaged other suppliers may be in seeking Olin's business, it will not diminish competition for business in the southeast.

The primary attack of the Government is not directed to the alleged adverse *affect* of the joint venture on existing competition, but against its *affect* upon various aspects of potential competition.

[fol. 2567] The Government argues that the financial resources of defendants, as compared with those of Hooker and AmPot, are so great as to give Penn-Olin competitive advantages that will ultimately lead to market domination by it. This contention is based largely upon the proposition that the defendants, because of their size, will be able to use their combined buying power as a basis for making reciprocal arrangements with vendors who are sodium chlorate buyers, which will give Penn-Olin an undue sales advantage over its competitors.

Pennsalt is an acknowledged practitioner of reciprocity and uses purchasing-marketing coordination to further its sales efforts. Whether this is also the policy of Olin is more questionable. The record does not disclose whether Hooker and AmPot have or will endeavor to capitalize on their buying power to further their sales position. But in any event, whatever advantage Penn-Olin might be able to obtain through reciprocal arrangements because of the combined size of the defendants scarcely warrants the conclusion that as a matter of reasonable probability Penn-Olin will ultimately dominate the sodium chlorate market.

AmPot and Hooker are both multi-million dollar companies with established positions in the southeastern market. Neither is apt to be at a competitive disadvantage simply because of defendants' size. Thus far, neither has [fol. 2568] shown any disposition to lessen its competitive

efforts because of confrontation by Penn-Olin. On the contrary, both have attempted to make themselves more formidable as business rivals. Prior to Penn-Olin, the capacity of the Hooker plant at Columbus was 29,150 tons. Since Penn-Olin, the capacity has been increased to 32,000 tons. After Penn-Olin's plan to build a plant at Calvert City became known, Hooker employed a new salesman who was a specialist in pulp and paper sales, and installed a pulp and paper research laboratory for its customers. It offered its customers five-year contracts guaranteeing them a firm price during the contract period. It also proposed to increase its selling efforts generally. These actions were due in part at least to the increased competition expected from Penn-Olin.

Similarly with AmPot. After AmPot learned of the joint venture it proceeded to expand the capacity of its Aberdeen plant from 12,000 to 22,500 tons, and began to offer five-year contracts to its customers guaranteeing them a fixed price for five years.

The determination in 1961 of PPG to enter the southeastern market makes the likelihood of market domination by Penn-Olin even more remote. PPG plans to construct a sodium chlorate plant at Lake Charles, Louisiana with an intended ultimate capacity of 15,000 tons. It is a company [fol. 2569] which in 1960 had assets of $625,000,000 and sales of $628,000,000. From the standpoint of size it is capable of competing effectively with Penn-Olin or anyone else. The Government's forecast that Penn-Olin will uproot Hooker and AmPot from their entrenched positions and ultimately become the dominant factor in the southeast is based on conjecture and nothing more.

The Government further asserts that the size of the Calvert City plant will probably deter other companies from entering the southeastern market, when otherwise they might have done so. The Government points out that Penn-Olin's 26,500 ton plant was the largest ever built at one time in the United States, and that previously almost all plants at the outset went in the 2,000-15,000 range. By the time Penn-Olin was ready to build, the demand for sodium chlorate in the southeast had increased dramatically. The size of its plant was not out of line with competitors' plants then in existence or imminently in prospect.

The *in terrorem* significance which the Government attributes to the disparity between the size of Penn-Olin's plant and those initially constructed by others under conditions which then prevailed, is not warranted.

Such evidence as there is should allay any fear that Penn-Olin, either because of the size of its plant or the [fol. 2570] combined resources of the defendants, will have any exclusionary effect upon potential entrants having antitrust relevance. When PPG announced its decision to build at Lake Charles, Louisiana, it knew of Penn-Olin's intention to build at Calvert City. Prospective competition from Penn-Olin did not cause PPG to alter its plans. It is true that PPG made its decision after the present suit was begun. It cannot be supposed, however, that PPG's decision was made upon the basis of so hazardous a judgment that Penn-Olin would be eliminated or rendered substantially less effective competitively by a judgment in the Government's favor. It is more reasonable to conclude that PPG acted because an appraisal of market conditions convinced it that regardless of the outcome of the present litigation, additional sodium chlorate capacity was needed in the southeast and that after its plant was built, it would be able to obtain a fair share of the market for itself.

The Government points out that "rumor" indicated that the idea of building in the southeast occurred to the Solvay Division of Allied Chemical Corporation, Wyandotte Chemicals, and Virginia Smelting Company, but that none had done so. Penn-Olin is said to be the reason. This rumor was never substantiated. Each of the rumored potential competitors was interviewed by agents of the F.B.I. at the direction and under the supervision of counsel for the [fol. 2571] Government. Yet the Government called no witness from any of the companies. Its failure to do so at least suggests that it could find no one to corroborate its claim.

It is true that prior to the joint venture Pennsalt was of the opinion that the southeastern market could handle only one more significant producer; and both Pennsalt and Olin believed that by a prompt announcement on February 15, 1960 of the formation of Penn-Olin and its plans, the market might be preempted from other potential competi-

tors.[20] But this evidence will not support the conclusion that one or more other companies were probably deterred by Penn-Olin from going into business in the southeast, since there is no proof that any newcomer other than PPG was considering doing so and PPG decided to enter the market after Penn-Olin had been announced. The absence of entry by others, in itself, is not too meaningful, since even before the formation of Penn-Olin was announced there had been no newcomers in the sodium chlorate industry for a decade. Furthermore, whether the unidentified companies which the Government asserts were probably excluded from the market would have been as effective business rivals as Penn-Olin is to be doubted. The com- [fol. 2572] bined experience of Pennsalt and Olin in sodium chlorate far exceeded that of any other potential market entrant. AmPot and Hooker had a virtual monopoly in the southeast and a formidable opponent was required if substantial inroads upon their entrenched positions were to be made.

It cannot be held that as of the date of trial Penn-Olin probably deterred others from entering the field. What Penn-Olin's effect in the future may be upon would-be entrants can only be a matter of conjecture. Obviously, the number and strength of companies already in a market will have a bearing upon another's decision to enter it. But it is only one of a myriad of other factors which will control the decision. The imponderables are too great to hazard a forecast as to Penn-Olin's future deterrent affect, even on the basis of probabilities, which will have validity.

The Government makes the further argument that if Olin and Pennsalt had not determined to become partners via Penn-Olin, the probabilities are that both would have built a sodium chlorate plant somewhere in the southeast. Penn-Olin, the argument runs, thus prevented Pennsalt, an "actual" competitor, and Olin, a "potential" competitor,

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[20] Evidence of the intention of parties to a combination is an aid in predicting their probable future conduct and the probable effect of the combination. See *Brown Shoe Co.* v. *United States, supra,* p. 329, n. 48.

[fol. 2573] from independently competing in the southeast.[21]

The interest which Pennsalt had in building a sodium chlorate plant in the southeast was of long standing. Its 20-year operating experience at Portland had provided it with all requisite manufacturing know-how, and it was aware of the rapidly expanding market in the southeast. As early as 1951 it had cost studies made for a plant at Calvert City, Kentucky. From 1955 on the company gave almost continuous consideration to the establishment of a plant in the southeast. The record contains frequent expressions of optimism by Pennsalt personnel concerning the desirability of southeastern expansion. Yet no decision to proceed was ever arrived at. This was due primarily to the inability of the management to satisfy itself that the plant would be sufficiently profitable to meet the rate of return standard which it had established as a condition for new investments.

Olin's interest in manufacturing and selling sodium chlorate in the southeast for its own account likewise antedated the joint venture by a number of years. It realized that sodium chlorate would soon replace sodium chlorite as a [fol. 2574] raw material in the Mathieson process, and that the demand for sodium chlorate by pulp and paper mills in the southeast was rapidly expanding. It had extended experience in the technical aspects of bleaching pulp and paper. It possessed valuable contacts with the pulp and paper mills as a result of selling other chemicals to them, and having made available, without charge, the Mathieson process. This combination of circumstances led

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[21] An additional argument is that the practical effect of Penn-Olin was to bring about an allocation of markets between Olin and Pennsalt. Thus, it is said that the joint interest of the companies in Penn-Olin will necessarily prevent Pennsalt from competing from its Portland plant for business in the southeast, and has foreclosed Olin from competing for west coast business from the plant which, but for Penn-Olin, it would have built in the southeast. This argument assumes a national market of competitive effectiveness. The absence of such a market invalidates the argument.

Olin to actively consider the possibility of building a plant of its own in the southeast. To that end, it had studies made of plant location, power availability, sales potential, manufacturing techniques, construction costs, profitability, and other relevant factors. But Olin, like Pennsalt, never decided to go forward independently with the project. The primary difficulty encountered every time the project was analyzed seemed to be the generally unsatisfactory rate of return.

Paralleling in point of time the studies which Pennsalt and Olin were making concerning the feasibility of building their own plants were several years of sporadic discussions between them relating to the possibility of entering the southeastern market by means of a joint arrangement of some kind. The joint venture agreement was the culmination of these discussions. The possibility of individual entry into the southeastern market had not been completely [fol. 2575] rejected by either Pennsalt or Olin before they decided upon the joint venture.[22]

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[22] Osborne, the President of Penn-Olin, testified that Olin's decision to enter the joint venture was made without determining that Olin could not or would not be an independent competitor. He testified that that question "never reached the point of final decision."

Pennsalt asserts that on December 5, 1957 its management made its final decision that it should not build a plant of its own and that this decision was never reconsidered or changed. The view that the December 5, 1957 decision was final is rejected. The record is replete with evidence that after December 5, 1957 Pennsalt continued to manifest an interest in an independent sodium chlorate venture, although this was primarily in the posture of a combined sodium chlorate-ammonium perchlorate plant. The consideration which was given to the ammonium perchlorate aspect of the venture was basically to support the manufacture of sodium chlorate. Ammonium perchlorate was viewed as a "sweetener" to justify the investment economically, since ammonium perchlorate, as compared with sodium chlorate, yielded a relatively high rate of return on investment.

In December 1958 the management of Pennsalt agreed

At the time when the joint venture was agreed upon Pennsalt and Olin each had an extensive background in sodium chlorate. Pennsalt had years of experience in manufacturing and selling it. Although Olin had never been a commercial manufacturer, it possessed a substantially [fol. 2576] developed manufacturing technique of its own, and also had available to it a process developed by Vickers-Krebs with whom it had been negotiating to construct a plant. Olin had contacts among the southeastern pulp and paper mills which Pennsalt lacked, but Pennsalt's own estimates indicate that in a reasonable time it would develop adequate business to support a plant if it decided to build. A suitable location for a plant was available to each company—Calvert City, Kentucky for Pennsalt, and the TVA area around Chattanooga, Tennessee for Olin. The financing required would not have been a problem for either company. In short, when the joint venture agreement was signed, Pennsalt and Olin each possessed the resources and general capability needed to build its own plant in the southeast and to compete with Hooker and AmPot in that market. Each could have done so if it had wished. While neither company was able to satisfy itself with the rate of return potential of an individually owned plant, the forecasts of each company indicated that a plant could be oper- [fol. 2577] ated with profit.[23] From the standpoint of

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to launch a full-scale effort to determine the feasibility of a sodium chlorate-ammonium perchlorate plant. This effort was not made because in January 1959 Pennsalt resumed joint venture discussions with Olin. The January 1959 minutes of the Appropriation Committee of Pennsalt indicate that if Olin was not desirous of proceeding with the joint venture, data on doing the project alone should be resubmitted to the committee. As late as December 30, 1959, Land, General Manager, Industrial Chemicals Division East, was still of the view that no final decision had been made whether Pennsalt would build its own plant.

[23] For instance, the so-called Whither Report of the Chemical Division of Olin dated April 10, 1959 disclosed that if Olin built a 15,000 ton sodium chlorate plant at Mackintosh, Alabama, it could be expected to show a profit after taxes equal to 11% on the gross investment of

profitability, however, Pennsalt and Olin both believed that they could make more money on their investment and that the risks would be less if their business were carried on through a jointly owned plant rather than by means of plants individually owned.

The fact that Olin and Pennsalt each had the capability of building a plant and competing individually is of no controlling significance. It is important only as a factor in determining whether as a matter of probability *both* companies would have entered the market as individual competitors if Penn-Olin had not been formed.[24] Only in this event would potential competition between the two companies have been foreclosed by the joint venture. Whether or not as a matter of probability Pennsalt or Olin would have constructed a plant of its own in the absence of Penn-Olin, need not be decided, for the reasons hereinafter stated. [fol. 2578] No evidence exists which will support a finding that if Penn-Olin had not been created Pennsalt and Olin would have *simultaneously* determined to build their own plants. Not only the inherent improbability of this occurring, but the protracted study which each company gave to the problem without arriving at an affirmative decision, negates such a likelihood. So that the best possible postulate on which the Government's case can be based is that one

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$4,100,000. A revision of the Report in October 1959 revealed that if Olin constructed a combined sodium chlorate-chlorine-caustic plant at Chattanooga, Tennessee, the investment of $3,590,000 attributed to the 15,000 ton sodium chlorate facility would yield an after-tax profit of 13.1%.

A study made by Pennsalt in 1959 for a combined sodium chlorate-ammonium perchlorate plant at Calvert City, Kentucky showed that the $6,961,300 investment cost assigned to the 25,000 ton sodium chlorate phase would yield a 15.9% after-tax return. Although both companies made a number of studies of the potential profit to be derived from a sodium chlorate plant and the anticipated yield on investment was not uniform, each of the studies forecast a profit.

[24] Section 7 is not concerned with possibilities of competition being substantially lessened; its aim is directed against combinations that probably will have that result. *Brown Shoe Co.* v. *United States*, *supra*, p. 323.

company would have decided to build while the other continued to ponder.

The decision by one company to build, however, might have had a bearing upon the decision of the other. The considerations which might induce one company to build its own plant when Hooker and AmPot were the only competitors would not necessarily be the same if a third competitor were about to enter the market. Pennsalt and Olin were each hesitant to build a plant of its own in a market occupied by two competitors. Whether the imminent presence of a third competitor might have made the prospect more or less appealing cannot be foretold. Neither company had ever faced the problem. The record affords no clue as to what action might have been taken if the problem had arisen. It is therefore impossible to conclude that as a matter of reasonable probability *both* Pennsalt and Olin [fol. 2579] would have built plants in the southeast if Penn-Olin had not been created.

The most favorable assumption that can be made from the Government's standpoint is that either Pennsalt or Olin—but not both—would have entered the southeastern market as an independent competitor if the two companies had not agreed to consolidate their efforts through Penn-Olin. Upon this assumption the effect of Penn-Olin was to eliminate Pennsalt or Olin, as the case may be, as a competitor. But even this hypothesized situation affords no basis for concluding that Penn-Olin had the effect of substantially lessening competition. Whether or not it did depends upon the competitive impact which Penn-Olin will have as against that which might have resulted if Pennsalt or Olin had been an individual market entrant.

The Government argues that any such comparison is irrelevant and that a determination that Olin (or Pennsalt) would have built its own plant but for Penn-Olin automatically condemns the joint venture.[25] Such an interpreta-

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[25] The Transcript of Argument reads at pp. 125-126:

"The Court: Let me ask you: If I should come to the conclusion that as a matter of reasonable probability, absent the joint venture, Olin would have constructed a factory and sold its products in the southeast, if I

[fol. 2580] tion would cut cut the heart out of Section 7. The Section denounces a substantial "lessening" of competition. "Lessening" is a word of comparison. It demands that the competitive situation which the challenged transaction has brought about be compared with that which otherwise would have existed. Under the Sherman Act competitive conditions before and after a trade restraint must be examined to determine its reasonableness. *Board of Trade of the City of Chicago* v. *United States*, 246 U.S. 231, 238 (1918). A similar comparison is no less essential in determining whether a transaction otherwise within the reach of the Clayton Act will affect competition adversely. If Penn-Olin had the effect of keeping Pennsalt or Olin out [fol. 2581] of the southeastern market, it runs afoul of Section 7 only if competition generally in the southeast will probably be substantially less under the joint entry by Pennsalt and Olin *via* Penn-Olin than it would have been if there had been individually entry by either Olin or Pennsalt.

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should come to that conclusion, does the Government contend that from that the Government must . . . win?"

"Mr. Freed: Yes.

"The Court: Let me ask you: Isn't there a further question as to whether or not the construction of a plant by Olin, sales of products by Olin in the southeast, would have produced a more competitive situation than did the joint venture?

"Mr. Freed: No, Your Honor, that would not be a legitimate question. It is not for the Government and it is not for the courts to weigh the advantages of combinations of competitors and what they give to the economy, and what individual companies give to the economy. . . ."

In arguing that competition created by the joint venture is irrelevant, the Government cites *U. S.* v. *Minnesota Mining & Manufacturing Co.*, 92 F.Supp. 947 (D. Mass. 1950) as an "important precedent". If the decision is susceptible of the interpretation which the Government gives it, it is inconsistent with the views herein expressed. *United States* v. *Bethlehem Steel Corp.*, *supra*, pp. 615-618, the other case relied upon by the Government, is clearly inapposite.

In the classical horizontal combination case an appraisal of the competitive potential of each of the combining competitors can be made upon the basis of its prior record. Here there are no past records of Pennsalt or Olin that can be drawn upon to show their individual competitive effectiveness in the southeast, except those which pertain to the 1957-1960 period when Olin was acting temporarily as Pennsalt's sales agent. They established a market penetration by Pennsalt and Olin which was insignificant compared with that of Hooker and AmPot. What the competitive impact of Pennsalt or Olin might have been if either had owned its own plant in the southeast cannot be determined from the record. Nor does the record disclose the competitive effectiveness, in terms of percent of business obtained or otherwise, which Penn-Olin has made since it began business.

Solely as a matter of theory, however, no reason exists to suppose that Penn-Olin will be a less effective competitor than Pennsalt or Olin would have been. The contrary conclusion is the more reasonable. Penn-Olin should be able [fol. 2582] to bring to the southeast the aggregate contributions of both companies. After all, Penn-Olin is owned and managed by both Olin and Pennsalt. Whatever manufacturing or marketing techniques, new product usages or other advantageous operational procedures are known to Olin or Pennsalt can be expected to be brought to the attention of Penn-Olin and utilized by it. Neither Pennsalt or Olin has any reason to suppress information which will be of advantage to Penn-Olin. All three companies are in business to make money, and competitive effectiveness is essential to the achievement of this objective.

Before trial, the Government interviewed and corresponded with a number of chemical companies and sodium chlorate producers. In spite of this, no witness was called to testify that the vigor of competition in the sale of sodium chlorate had been, or is likely to be, lessened by Penn-Olin. Nor did the plaintiff introduce any testimony from purchasers of sodium chlorate who complained of any lessening of competition in the industry. Dirkson, Eastern General Sales Manager of AmPot, who called by the Government, testified that there had been no lessening in competi-

tion since the establishment of Penn-Olin and that he knew of no facts likely to lead to a lessening in the future.

[fol. 2583] It is not every lessening of competition which is forbidden by Section 7. The lessening of competition becomes a matter of legislative concern only if it is reduced to a substantial degree, that is to say to such an extent as will injuriously affect the public. *International Shoe Co.* v. *F.T.C.*, 280 U.S. 291, 298 (1930).

Prior to Penn-Olin building its plant at Calvert City, Kentucky, Hooker and AmPot had virtually a monopoly in the southeast. With Penn-Olin will be three competitors; and when the PPG plant at Lake Charles goes on stream, there will be four. Each of the newcomers is a sizeable company and should be able to give a good account of itself. Actual and in-prospect production in the southeast will have more than doubled since the joint venture was entered into, as shown by the following tabulation:

Company and Plant Location	Capacity in Tons 1959	Capacity in Tons Projected 1962
Hooker Columbus, Mississippi	29,150	32,000
AmPot Aberdeen, Mississippi	12,000	22,500
Penn-Olin Calvert City, Kentucky		26,500
PPG Lake Charles, Louisiana		15,000[26]
Total	41,150	96,000

[fol. 2584] The advent of Penn-Olin, and later PPG in the southeastern market, together with the increased production in that market, will in all likelihood increase the competition which theretofore existed and bring to buyers of sodium chlorate and to the public the benefits which normally result therefrom.

Congress, in amending Section 7 of the Clayton Act, recognized that all combinations were not anticompetitive, and that in some instances combinations may have the effect of stimulating competition. *Brown Shoe Co.* v. *United States, supra*, p. 319. The probabilities are that Penn-Olin will have that effect.

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[26] To be achieved gradually on a stepped-up basis.

The Government makes an additional argument founded upon two agreements between Olin and Pennsalt which antedated the joint venture. One, the sales agreement, was made in December 1957; the other, the so-called production agreement, was made in February 1958. It is asserted that the joint venture consummated and perpetuated the restraints in sodium chlorate imposed by the two earlier agreements which were in themselves illegal. For this reason, the argument goes, even if Penn-Olin might have been lawful as a spontaneous creation, its heritage of restraints under the earlier agreements requires its dissolution. *United States* v. *Yellow Cab Co.*, 332 U.S. 218, 227 (1947) is cited in support of this proposition.

[fol. 2585] As subsequently shown the sales agreement and production agreement were not in and of themselves in derogation of the Sherman Act. Nor, as has been previously shown, was the joint venture, considered independently of the prior agreements, in violation of Section 7 of the Clayton Act. The fact that the three transactions—the joint venture and the two agreements—each legal when considered independently, occurred sequentially and as a part of the totality of events, cannot make them, in combination, illegal. *United States* v. *Yellow Cab Co., supra,* is not at variance with this view.

It is the burden of the Government to establish that the joint venture probably will have the effect of substantially lessening competition or that it will tend to create a monopoly in sodium chlorate in the southeastern market. This burden has not been met. The joint venture agreement, in its sodium chlorate aspect, violated neither Section 1 of the Sherman Act or Section 7 of the Clayton Act.

The Affect of the Joint Venture on Competition in Calcium Hypochlorite

As stated, Pennsalt and Olin are substantial competitors, on a nationwide scale, in calcium hypochlorite, one of the non-chlorate chemicals. Together they had 88.8% of the market in 1959 and 76.6% in 1960. The only other competitor of importance is PPG.

[fol. 2586] The joint venture letter agreement of February 11, 1960 provides that Penn-Olin will manufacture and market not only sodium chlorate but potassium chlorate

and perchlorates as well. This agreement was superseded by the definitive contract of October 17, 1961 which limited the operation of the joint venture to sodium chlorate.[27] The Calvert City plant was constructed to produce sodium chlorate only. So that under its present contract and with its existing physical facilities, Penn-Olin cannot manufacture and sell calcium hypochlorate. It is not important that the breadth of the language of Penn-Olin's charter, frequently found in Delaware charters, authorizes it to do so. The Government concedes that it knows of no plans of the defendants to expand the Calvert City plant or to produce any product other than sodium chlorate.[28]

The Government asserts that in the operation of Penn-Olin high officials of Pennsalt and Olin who make the price and marketing and other pertinent decisions for their own companies will be interlocked with each other as officers and directors of Penn-Olin, and that the information concerning the chemical business which each brings to Penn-Olin's meetings will relate not only to their joint product, sodium [fol. 2587] chlorate, but also to non-chlorates, including calcium hypochlorite, in which they compete. Discussions which will ensue between the Pennsalt and Olin representatives in their common effort to make the sodium chlorate business a success, the Government argues, will inevitably lead to discussions of all phases of the non-chlorate business in which they are in competition, since chlorate and non-chlorate price policies, marketing areas, distribution systems and customers coincide or overlap. The Government asserts that in these circumstances it would "defy human nature" for the sodium chlorate partners to maintain an unfaltering zeal to compete in non-chlorates.

No evidence exists of collusion of any type, either actual or threatened, between defendants in the conduct of their non-chlorate operations. A finding of illegality in this area, if it is to be made, must rest upon an inference that a substantially lessening of competition between Pennsalt and Olin in non-chlorates will probably result because of the

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[27] Although this was after suit had been begun on January 6, 1961, Olin had determined internally in 1960 that the joint venture should be restricted to sodium chlorate.

[28] Transcript of Argument, p. 44.

opportunity which their representatives have to make anti-competitive agreements when they meet in connection with Penn-Olin's affairs. Such an inference is incompatible with the holding in *Maple Flooring Asso.* v. *United States*, 268 U.S. 563 (1925). There it was argued that a trade association consisting of hardwood flooring manufacturers in [fol. 2588] actual competition with each other which held meetings for the purpose of discussing and exchanging information about costs, commissions, freight rates, sales prices and other pertinent marketing data, would have the "*necessary* tendency" to unduly restrain competition in violation of Section 1 of the Sherman Act (p. 578). The Court held, however, that in the absence of proof that anti-competitive agreements or concerted action had been reached or attempted, there was no basis for inferring that the association meetings would result in a violation of the law (p. 586).

The probability of competition being substantially lessened by conduct specified in the antitrust statues need not be established by direct evidence. Inferences that competitive restrictions will probably result are judicially acceptable if supported by adequate evidence. Here the proof shows only an opportunity for illegal activities. That is not enough. To equate opportunity for wrongdoing with likelihood of its occurrence reflects a cynicism toward business behavior which is without warrant. Presumption of probable wrongdoing cannot be a substitute for its proof.

There is no basis for finding that the joint venture and the activities of the parties thereunder probably will substantially lessen competition or tend to create a monoply in calcium hypochlorite in violation of Section 1 of the Sherman Act or Section 7 of the Clayton Act.

[fol. 2589] The Asserted Illegality of Sales and Production Agreements

The Government challenges two agreements entered into by Olin and Pennsalt in December 1957 and February 1958, referred to, respectively, as the "sales" agreement and the "production" agreement. The Government contends that these agreements, in and of themselves and without refer-

ence to the joint venture, unreasonably restrained trade in violation of Section 1 of the Sherman Act.[28]

The relevant line of commerce is sodium chlorate. Although the evidence does not permit a statistical market analysis for 1957 and 1958 comparable to that previously made for 1960, there is no reason to believe that the situation was substantially different in the three years. Hence the southeast will be deemed to be the only relevant market in which to determine the competitive effect of the 1957 and 1958 agreements.

The Sales Agreement

The sales agreement had this background: In October 1957 the productive capacity of Pennsalt at its Portland plant was expanded from 7,848 to 12,392 tons. This enabled it to produce some tonnage which it could not sell on the west coast. At the time Pennsalt was desirous of exploring with Olin the possibility of a sodium chlorate joint venture [fol. 2590] in the southeast. Distribution by Olin of Pennsalt's production would permit the southeastern market to be jointly tested and enable Pennsalt to work off some of its surplus. Pennsalt thought that such a temporary arrangement might serve to stimulate Olin's interest in a joint venture. This combination of circumstances caused Pennsalt to initiate discussions with Olin which in December 1957 culminated in the agreement.

The agreement provided in substance that Pennsalt would make available to Olin's southern sales organization 2,000 tons of bulk sodium chlorate per year to be sold at prices established by local competition. Olin agreed to sell this sodium chlorate in bulk only to pulp and paper mills in the southeast. Pennsalt agreed to provide technical service upon Olin's request. Pennsalt reserved the right to serve directly only one southeastern pulp mill, Buckeye Cellulose Company at Foley, Florida. The agreement was on a year-to-year basis, but the parties expected it would last for two or three years. The sales agreement was adhered to from the time when it was made until the joint venture agreement was signed.

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[28] Transcript Argument, p. 54.

The effect of the sales agreement was to preclude Olin from selling sodium chlorate manufactured by Pennsalt to anyone anywhere except pulp and paper mills in the southeast. Concurrently, it precluded Pennsalt from selling directly to the pulp and paper companies in the southeast, [fol. 2591] except Buckeye. This "territorial division" and "customer allocation", the Government asserts, foreclosed competition between Pennsalt and Olin in substantial geographical areas and consumer uses.

While the Government does not say so in so many words, it apparently takes the position that the territorial and customer restrictions imposed by the agreement constitute *per se* violations of the Sherman Act. It has recently been held, however, that a vertical arrangement by a manufacturer and a dealer-distributor restricting the right of the latter to sell only in specified territories and to designated customers cannot be deemed, as yet, to be a *per se* violation. *White Motor Company* v. *United States*, No. 54 October Term, 1962, 31 U.S.L.W. 4231 (Mar. 4, 1963). This principle, now definitively settled, would appear to have even greater application in the instant case where the arrangement was between a manufacturer and its sales agent.

The Government argues that the sales agreement was not comparable to an arrangement between a manufacturer and distributor, such as was considered in *White Motors*. Rather, says the Government, the Pennsalt-Olin agreement was one between potential competitors since Pennsalt was an actual competitor in sodium chlorate and Olin was considering going into the same business.[30]

[fol. 2592] The principle that a horizontal market division between competitors is a *per se* violation of the Sherman Act rests upon the premise that all such agreements impose naked restraints on trade and have no purpose except to stifle competition. Because of their pernicious effect on competition and lack of any redeeming virtue, they are conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use. *White Motor Company* v. *United States, supra.*

Thus far this principle appears to have been limited to

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[30] Transcript of Argument, pp. 55-57.

agreements between parties which are actual competitors. The Government admits that it knows of no instance where it has been brought to bear upon potential competitors."[21] Whether it can be applied in the instant case requires consideration *in limine* of the extent to which Olin and Pennsalt were potentially competitive.

The concept of potential competition is, to say the least, a flexible one, and is subject to almost unlimited gradations in meaning. The degree of likelihood of competition may cover a broad range. In point of time its prospect may be remote or imminent. Involved may be companies which are financially weak or strong or both. The problem may con- [fol. 2593] cern companies with experience in manufacturing and selling the same product in other relevant markets or companies which are newcomers to the industry. The potential market may be one occupied by other competitors, or one ripe for exploitation because of the absence of competition. A whole gamit of other environmental factors may be envisioned which will bear upon the significance of the so-called potential to compete. Only if the "potential competition" is analyzed and defined in the light of the evidence can the concept be meaningful in the solution of an antitrust problem. To simply describe companies as potential competitors is not enough.

Here, although Pennsalt had a plant in Portland since 1941, it had never been able to develop any business of significance in the southeast. In its agreement with Olin it reserved the right to sell to only one customer, Buckeye. Pennsalt was able to retain the business of Buckeye only because of a unique circumstance which gave to Buckeye a particular freight advantage in receiving shipments from the west coast. The insignificance of Pennsalt as a competitive shipper from Portland to the southeast in 1960 has been discussed earlier in this opinion. The record is devoid of evidence to permit comparable analysis for 1957; but it does show that in 1957 Pennsalt shipped into the southeastern market only 597 tons. There is no reason to suppose [fol. 2594] that in 1957 Pennsalt was a more vital competitive factor in the southeast than it was in 1960.

So far as Olin is concerned, at the time when it entered

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[21] Transcript of Argument, p. 57.

into the agreement, it had never manufactured sodium chlorate for sale or sold it anywhere. Although it was studying the desirability of going into the business no decision to do so had been made.

In short, when the sales agreement was made, both Pennsalt and Olin were far removed from the point of becoming actual competitors in the southeastern market, or anywhere else. To say that they were potential competitors stretches the concept to the point where, in an antitrust context, it is virtually meaningless. Their relationship provides no basis for applying the *per se* violation rule applicable to actual competitors who agree to divide territories and customers between themselves.

So that whether the sales agreement is scrutinized simply as a contract between a manufacturer and his sales agent, analogous to the manufacturer-distributor-dealer relationship dealt with in *White Motors*, or is examined with emphasis upon the status of the parties as potential competitors, the "rule of reason" read into the Sherman Act by *Standard Oil Co.* v. *United States*, 221 U.S. 1, 59-62 (1911) must be applied, and the evidence examined to ascertain [fol. 2595] whether the restraint of trade which the sales agreement is said to have imposed, was unreasonable.

The sales agreement did not impose the severe territorial or customer limitations which the Government claims. It did not preclude Olin from manufacturing sodium chlorate or from purchasing it from Pennsalt's competitors; and if Olin did either it was free to sell the product to anybody outside of the southeast, and to anybody in the southeast other than pulp or paper mills.

The agreement did not prevent Pennsalt from selling sodium chlorate to anyone in the United States, except pulp and paper mills in the southeast. All that it did was to prevent Pennsalt from selling through its own personnel sodium chlorate to pulp and paper mills in the southeast. Even as to the latter business Pennsalt competed through the instrumentality of Olin, much as AmPot did through the Solvay Division of Allied Chemical.

The business which Olin was able to generate was not large. The sales which it made under the agreement in 1958 amounted to 1,113 tons, and in 1959 to 1,329 tons. In

1960, after Pennsalt and Olin had agreed to form Penn-Olin, 3,203 tons were sold. Olin enjoyed contacts and good will with the buyers which Pennsalt lacked. The probabilities are [fol. 2596] that Pennsalt was able to compete more effectively through Olin than it could have without Olin's assistance. In 1960, the year of its largest southeastern shipments, and with Olin's help, Pennsalt was only able to supply 9% of the total 47,035.76 tons shipped into the market. Of the remaining amount, Hooker and AmPot together supplied 91%. Even if the sales agreement be regarded as eliminating Pennsalt from competing for the business of the southeastern pulp and paper manufacturers, the exclusionary effect of the agreement was not substantial.

So far as a Sherman Act violation is concerned, the result must turn on the significance of the business practices in the terms of restraint of trade. *United States* v. *Masonite Corporation*, 316 U.S. 265, 280 (1942). The sales agreement imposed no unreasonable restraint of trade upon sodium chlorate in the southeast, and did not violate Section 1 of the Sherman Act.

[fol. 2597] The Production Agreement

The second pre-joint venture agreement which the Government attacks is the so-called "production agreement" entered into on February 3, 1958. This is reflected in the memorandum written the following day by Mr. Logan, Vice President of Olin. There he details a visit which he had the preceding day with top officials of Pennsalt. The memorandum states:

> "Drake (Pennsalt's president) outlined their long-range interest in chlorate in the south and suggested that there was sufficient that both Pennsalt and OM had to contribute to seriously consider joint activity.
>
> . . . . . .
>
> "It is felt that neither OM nor Pennsalt should move in the chlorate or perchlorate field without keeping the other party informed and I agreed to do so.
>
> . . . . . .

"Either party is to bring to the attention of the other any unusual aspects of this business which might make it desirable to proceed further with production plans."

There is no justification for the claim that this agreement destroyed all opportunities for competition between Pennsalt and Olin and that plans for independent eastern production by each company were thereby thwarted. This was neither the intention nor the effect of the agreement. [fol. 2598] Its purpose, according to Drake, was to make certain that if one party decided to "go it alone" while the joint venture was under consideration, the other party would be so advised since it would be futile for the latter to give further consideration to the joint venture. That the agreement was not designed to curtail individual market entry or to thwart plans therefor is borne out by activities of the parties after the understanding had been reached.

In September 1958—seven months after the agreement—the agenda for Pennsalt's annual management meeting raised for firm decision the question whether it would build a sodium chlorate plant, and if so, where. At the meeting held in November 1958, tentative approval was reached to build a 30,000 ton sodium chlorate plant at Calvert City, Kentucky, 20,000 tons of which would be sold as such and 10,000 tons of which would be devoted to the production of ammonium perchlorate.[32] The action taken was based upon a study of the capital requirements and profitability of the venture reflected in a report of October 31, 1958 from A. S. Woodard, manager of engineering, to Vice President LaLande. The purpose of Pennsalt in going into perchlorates was to enable Pennsalt independently to undertake [fol. 2599] the manufacture of sodium chlorate. Pennsalt's interest in a plant of its own continued throughout 1958.

So far as Olin is concerned, the record is replete with

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[32] Ammonium perchlorate is used as an oxidizer for high energy solid state missile propellants. Sodium chlorate is the raw material out of which ammonium perchlorate is made. The profit obtainable from the latter was much greater than that which could be derived from the former. A plant which produced both products would yield an overall rate of return satisfactory to Pennsalt.

evidence that its interest in building a sodium chlorate plant of its own was not terminated by the production agreement. Illustrative is the so-called Whither report of the Chemicals Division which was made on April 10, 1959. This recommended that Olin enter the sodium chlorate business immediately by constructing a 15,000 ton sodium chlorate plant adjacent to its existing chlorine-caustic soda plant at Mackintosh, Alabama. At a meeting on April 16, 1959 between representatives of the Chemicals Division and corporate staff, the proposed Mackintosh project was not deemed sufficiently attractive to be approved. The matter was not dropped, but it was determined that there should be further study on certain specified points. In October 1959 the Chemicals Division filed another Whither report which made a definitive recommendation that sodium chlorate be a wholly Olin project but that the plant be located at Chattanooga instead of Mackintosh. Olin's corporate staff did not disapprove or otherwise act upon the October 1959 report prior to the joint venture decision of 1960.

[fol. 2600] In view of this evidence it is impossible to attribute to the production agreement the stultifying *effect* on individual competition by Olin and Pennsalt which the Government would ascribe to it. The agreement did not constitute an unreasonable restraint of trade in violation of Section 1 of the Sherman Act.

A judgment will be entered dismissing the complaint as amended.

The foregoing opinion constitutes the findings of fact and conclusions of law required by F.R.C.P. 52(a).

At: Wilmington, Delaware.
Date: May 1, 1963.

[fol. 2601] IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

[Title omitted]

ORDER ENTERING JUDGMENT—May 15, 1963

And now this 15 day of May, 1963, this case having come on for final hearing on the merits, and having been fully heard upon oral testimony, depositions, exhibits, and argument of counsel for the respective parties, and having been maturely considered by the Court, and Findings of Fact and Conclusions of Law having been filed, it is, for the reasons set forth in the opinion of this Court dated May 1, 1963:

Ordered that judgment be and it hereby is entered in favor of each of the defendants and against the plaintiff.

Edwin D. Steel, Jr., United States District Judge.

Approved as to form:

David J. Freed, Attorney for Plaintiff.

[fol. 2602] [File endorsement omitted.]

[fol. 2603] IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

[Title omitted]

NOTICE OF APPEAL TO THE SUPREME COURT OF THE UNITED STATES—Filed July 15, 1963

I. Notice is hereby given that the United States of America, the plaintiff above named, hereby appeals to the Supreme Court of the United States from the final judgment entered in this action on May 15, 1963 dismissing this suit. This appeal is taken pursuant to Section 2 of the Expediting Act, 32 Stat. 823, as amended, 15 U.S.C. 29.

II. The Clerk will please prepare a transcript of the record in this cause for transmission to the Clerk of the Supreme Court of the United States, and include therein the entire record before the district court, including all papers filed with the Clerk of the Court in this proceeding, the transcript of the trial proceedings, all exhibits and proposed findings submitted by the parties, and this Notice of Appeal.

III. The question presented by this appeal is whether the joint venture of Pennsalt Chemicals Corporation and Olin-Mathieson Chemical Corporation in the production and sale of sodium chlorate violated Section 7 of the Clayton Act and Section 1 of the Sherman Act.

/s/Alexander Greenfeld, United States Attorney, Wilmington, Delaware.

/s/ Robert B. Hummel, /s/ Lionel Kestenbaum, Attorneys, Department of Justice, Washington, D. C. 20530.

[fol. 2604] CERTIFICATE OF SERVICE (omitted in printing.)

[fol. 2605] [File endorsement omitted.]

[fol. 2606] IN UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

UNITED STATES OF AMERICA, Plaintiff,

v.

PENN-OLIN CHEMICAL COMPANY, ET AL., Defendants.

ORDER EXTENDING TIME TO DOCKET CASE—September 9, 1963

Upon motion of the United States in the above captioned case it is hereby ordered that the time for docketing this case on appeal in the Supreme Court of the United States shall be extended for a period of 14 days until September 27, 1963.

/s/ Edwin D. Steel, Jr., United States District Judge.

Dated: September 9, 1963.

[fol. 2607] Clerk's Certificate to foregoing paper omitted in printing.

[fol. 2608] SUPREME COURT OF THE UNITED STATES, OCTOBER TERM, 1963

No. 503

UNITED STATES, Appellant,

vs.

PENN-OLIN CHEMICAL COMPANY, ET AL.

ORDER NOTING PROBABLE JURISDICTION—December 9, 1963

Appeal from the United State District Court for the District of Delaware.

The statement of jurisdiction in this case having been submitted and considered by the Court, probable jurisdiction is noted.

☆ U. S. GOVERNMENT PRINTING OFFICE 1964 719556 892

INDEX

	Page
Opinion below	1
Jurisdiction	1
Question presented	2
Statutes involved	3
Statement	3
1. The companies involved	4
2. The sodium chlorate market	6
3. The joint venture in its commercial setting	7
4. The decision of the district court	11
The question is substantial	14
1. The Clayton Act violation	16
2. The Sherman Act violation	23
Conclusion	25
Appendix	1a

CITATIONS

Cases:	
Aluminum Co. of America v. *Federal Trade Commission*, 284 Fed. 401	22
Associated Press v. *United States*, 326 U.S. 1	15
Brown Shoe Co. v. *United States*, 370 U.S. 294	23, 24
Timken Roller Bearing Co. v. *United States*, 341 U.S. 593	15
United States v. *Aluminum Co. of America*, 148 F. 2d 416	24
United States v. *du Pont & Co.*, 353 U.S. 586	2
United States v. *Imperial Chemical Industries*, 100 F. Supp. 504	15
United States v. *Minnesota Mining & Mfg. Co.*, 92 F. Supp. 947	15
United States v. *Pan American World Airways, Inc.*, 193 F. Supp. 18, reversed on other grounds, 371 U.S. 296	15

Cases—Continued	Page
United States v. *Patterson*, 59 Fed. 280	24
United States v. *Philadelphia Nat. Bank*, 374 U.S. 321	23
United States v. *Singer Mfg. Co.*, 374 U.S. 174	2
United States v. *United Shoe Machinery Co.*, 247 U.S. 32	24
Statutes:	
Clayton Act, Section 7, 38 Stat. 731, as amended, 15 U.S.C. 18	3, 11, 14, 16, 17, 21, 22, 23, 24
Sherman Act, Section 1, 26 Stat. 209, as amended, 15 U.S.C. 1	3, 14, 23
Miscellaneous:	
Comment, *Joint Subsidiaries and Section 7 of the Clayton Act*, 39 U. Det. L.J. 223, citing Merrill Lynch, Pierce, Fenner & Smith, *Chemicals* (1958)	14
Dixon, "*Joint Ventures: What is their Impact on Competition?*" 7 Antitrust Bull. 397	14
Hale, *Joint Ventures: Collaborative Subsidiaries and the Antitrust Laws*, 42 Va. L. Rev. 927	15
Kaysen & Turner, *Antitrust Policy*	14
Note, *Joint Ventures and Section 7 of the Clayton Act*, 14 Stan. L. Rev. 777	15
Note, *The Corporate Joint Venture under the Antitrust Laws*, 37 N.Y.U.L. Rev. 712	15
Rahl, *Applicability of the Clayton Act to Potential Competition*, 12 ABA Antitrust Sec. Rep	15

In the Supreme Court of the United States

OCTOBER TERM, 1963

No. —

UNITED STATES OF AMERICA, APPELLANT

v.

PENN-OLIN CHEMICAL COMPANY, ET AL.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

JURISDICTIONAL STATEMENT

OPINION BELOW

The opinion of the district court, constituting its findings of fact and conclusions of law (App., *infra*), is reported at 217 F. Supp. 110.

JURISDICTION

On May 15, 1963, the district court entered judgment dismissing the government's amended complaint (App. 56a). The United States filed a notice of appeal on July 15, 1963. The district court on September 9, 1963, extended the time for docketing this appeal to and including September 27, 1963. Section 2 of the Expediting Act, 32 Stat. 823, as amended,

15 U.S.C. 29, vests this Court with jurisdiction to review the judgment on direct appeal. *United States* v. *Singer Mfg. Co.*, 374 U.S. 174; *United States* v. *du Pont & Co.*, 353 U.S. 586.

QUESTION PRESENTED

Olin Mathieson Chemical Corporation and Pennsalt Chemicals Comporation jointly formed the Penn-Olin Chemical Company to produce and market sodium chlorate in the southeastern United States. The district court found that each of the parent companies had an extensive background in sodium chlorate; each had evinced long-standing interest in the possibility of entering the southeastern market as an independent competitor; each had available a suitable plant site; each had the resources and general capability needed to build its own plant in the southeast and had determined that an individually owned plant could be operated with profit; and acting independently each could have effectively competed in the southeastern market if it had wished to do so. The question presented is: whether the joint venture, which was entered into while each of the companies still had under consideration plans for independently entering the market, was a combination in unreasonable restraint of trade in violation of Section 1 of the Sherman Act, and involved an acquisition the effect of which may be substantially to lessen competition in violation of Section 7 of the Clayton Act.

STATUTES INVOLVED

Section 1 of the Sherman Act, 26 Stat. 209, as amended, 15 U.S.C. 1, provides in pertinent part:

> Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States * * * is hereby declared to be illegal * * *.

The relevant portion of Section 7 of the Clayton Act, 38 Stat. 731, as amended, 15 U.S.C. 18, provides:

> That no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.

STATEMENT

This is a direct appeal from a final judgment of the district court (Steel, J.) dismissing after trial a civil antitrust action brought by the United States. The government's amended complaint charged violations of Section 1 of the Sherman Act and Section 7 of the Clayton Act. It alleged that Olin Mathieson Chemical Corporation ("Olin") and Pennsalt Chemicals Corporation ("Pennsalt"), through the joint formation of the Penn-Olin Chemical Company ("Penn-Olin") to produce and market sodium chlorate, had, *inter alia*, eliminated potential competition between

themselves in the production and sale of sodium chlorate. The pertinent facts, most of which are taken from the district court's findings, are as follows:

1. THE COMPANIES INVOLVED

Olin is a large, diversified industrial corporation, which was formed in 1954 by the merger of Olin Industries, Inc. and Mathieson Chemical Corporation (App. 4a). Its chemical division, one of seven operating divisions, produces a wide range of chemicals and chemical products in plants located in 15 states, and accounts for about 30 percent of Olin's operating revenues (App. 4a). In 1960 Olin's net sales of chemicals and chemical products were $217 million; its total sales amounted to $690 million; its assets totaled $860 million; and it made capital expenditures of almost $49 million (App. 5a).

In the early 1930's one of Olin's predecessors produced sodium chlorate for its internal use (App. 13a). Olin itself, however, has never engaged in commercial production of this chemical, although it purchases sodium chlorate for its own use (App. 13a, 29a, and fn. 19). Its patented "Mathieson process" for bleaching pulp, which consumes sodium chlorate, is widely used by paper manufacturers under royalty-free licenses (App. 12a–13a, and fn. 5).

Pennsalt has been engaged in the chemical business for more than 110 years (App. 4a). Its sole activity is the production and sale of chemicals and chemical products throughout the United States (App. 3a–4a).

In 1960 Pennsalt's sales were more than $90 million, and it had assets of approximately the same amount (App. 4a). Since 1958 it has been engaged in a $55 million modernization and expansion program (App. 4a).

Since 1941 Pennsalt has produced sodium chlorate at a single plant in Portland, Oregon (App. 11a). The capacity of the Portland plant has steadily been increased from 2,194 tons per year in 1941 to 15,392 tons in 1959 (App. 11a). Most of Pennsalt's sales of sodium chlorate have been to users located west of the Rocky Mountains (App. 11a), although in 1960 Pennsalt shipped 4,186 tons of the chemical, amounting to 27 percent of its total sodium chlorate sales that year, into the southeastern United States (App. 21a). Of these shipments into the southeast 3,203 tons were sold for Pennsalt by Olin, acting as Pennsalt's sales agent under a contract of December 1957 (App. 21a; see *infra*, pp. 10-11).

Penn-Olin was organized on February 25, 1960, pursuant to a joint venture agreement between Olin and Pennsalt dated February 11, 1960 (App. 5a). Pennsalt and Olin each own one-half of the capital stock of Penn-Olin, and the directors and officers of the joint subsidiary are also divided equally between the two parents (App. 5a).

Penn-Olin commenced operations on September 1, 1961, in a plant located at Calvert City, Kentucky (App. 5a). The plant was built at a cost of about $6.5 million and has the capacity to produce 26,500 tons of sodium chlorate per year (App. 5a). By an

agreement of October 1961 Pennsalt has undertaken to operate the plant, and Olin has assumed responsibility for sales (App. 5a).

2. THE SODIUM CHLORATE MARKET

Sodium chlorate is produced commercially by the electrolysis of an acidified solution of sodium chloride (salt) (App. 7a). All sodium chlorate of like purity is fungible and can be used interchangeably (App. 8a). In 1960, 91,900 tons of the chemical, valued at around $18 million, were produced domestically; 54,600 tons east of the Rocky Mountains, and 37,300 tons in the west (App. 8a).

Sodium chlorate has various uses. Firms in the pulp and paper industry, which consumes most of the domestic production (64 percent in 1960), use sodium chlorate as a raw material in the production of a pulp bleaching agent (chlorine dioxide) (App. 8a–9a). Sodium chlorate is also employed in the production of weed control herbicides, agricultural chemicals, and certain derivatives such as ammonium perchlorate (App. 8a, 9a).

Prior to the formation of Penn-Olin three producing companies, Pennsalt, American Potash & Chemical Corporation ("AmPot"), and Hooker Chemical Corporation ("Hooker"), or their predecessors, made up the domestic sodium chlorate industry (App. 9a). The two most important domestic markets served by these companies were the southeastern and western United States (App. 17a). Only Pennsalt and AmPot have plants in the west (App. 16a). Hooker's predecessor had constructed a plant in the southeast (at

Columbus, Mississippi) in 1954, the capacity of which almost doubled between 1957 and 1960 (App. 9a, 10a). AmPot authorized construction of a plant at Aberdeen, Mississippi, in 1957 to meet the growing demand in the southeast and to enable it to compete effectively in that area with Hooker's Columbus plant (App. 10a). The Aberdeen plant was in operation by 1959, and in 1961 its capacity was increased by 50 percent to 22,500 tons per year (App. 10a).

Hooker, the largest of the three companies, entered the industry in 1956 when it acquired Oldbury Electro Chemical Company, which had been producing sodium chlorate since the turn of the century (App. 9a). Hooker has two plants: the one at Columbus, having a 32,000-ton capacity in 1960, and one at Niagara Falls, New York, having a capacity of 18,000 tons (App. 9a–10a). AmPot also has two plants, which had the following capacity in 1960: Henderson, Nevada (27,000 tons), and Aberdeen, Mississippi (15,000 tons) (App. 10a). After the formation of Penn-Olin and the institution of this action, Pittsburgh Plate Glass Company announced plans to construct a 15,000-ton-per-year sodium chlorate plant at Lake Charles, Louisiana (App. 12a). Pacific Engineering & Production Company also began constructing a 5,000-ton capacity sodium chlorate plant at Henderson, Nevada, which presumably commenced production in late 1962 (see App. 12a).

3. THE JOINT VENTURE IN ITS COMMERCIAL SETTING

In the late 1950's the only producers of sodium chlorate in the United States were Hooker, AmPot,

and Pennsalt. No new firms had entered the industry in a decade (App. 33a); prices were stable (PX 254, 11);[1] and little effort had been made to expand existing uses or to develop new ones (PX 146, p. 2).

During the 1950's the sodium chlorate market began to grow, chiefly because of the adoption and rapid expansion of chlorine dioxide bleaching in the pulp industry (App. 9a). This expansion was attributable primarily to the efforts of Olin and Allied Chemical Corporation (Solvay Division) in granting royalty-free licenses to pulp and paper manufacturers under their patented processes for the generation of chlorine dioxide (App. 11a, 13a, fn. 5).[2] The market growth has been most pronounced in the southeast. By 1960 that area had the heaviest concentration of sodium chlorate buyers, of which the pulp and paper mills were by far the largest, and represented nearly half the national sodium chlorate pro-

[1] Government exhibits are referred to as "PX" (plaintiff's exhibit), to conform with the designation used in the court below. The exhibits cited herein are PX nos. 32, 56, 60, 100, 146, 154, 188, 189, 197, 205, 215, 226, 232, 245, 254, 286, 306, 309, 313, 316, 317, 320, 322, 323, 324, 336, 337, 338, 392 (pp. 277–278, 313–318, 353); 394 (p. 71), 399 (pp. 101–103), 401 (pp. 29–30), 402 (p. 64), 406 (pp. 169–170), 408 (pp. 75–76), and 414. They were offered into evidence at Tr. 139, 141, 143, 145, 147–155, 163, 172–174, 176–182, 189, 196, and were admitted by the court at Tr. 189 and 196, subject to objections by defendants in their briefs. No such objections were made.

[2] By 1960, most of this chlorine dioxide—100 percent in the west, and around 60 percent in the remainder of the country—was being produced under Olin Mathieson's process (App. 11a–12a; PX 188, PX 245). Pennsalt, which installed the Mathieson process in western paper mills under a 1958 agreement with Olin (see fn. 3, *infra*), supplied 100 percent of the sodium chlorate used by those mills in 1960 (App. 12a).

ductive capacity (App. 17a). In that year the southeastern market was divided among the three producers in the following proportions: Hooker (49.5 percent), AmPot (41.6 percent), and Pennsalt (8.9 percent) (App. 28a).

Prior to the joint venture, both Pennsalt and Olin had long been interested in entering, as individual producers, the rapidly growing southeastern sodium chlorate market. Pennsalt made cost studies for a plant at Calvert City, Kentucky, as early as 1951, and from 1955 on had given almost continuous consideration to the establishment of a plant in the southeast (App. 35a). Despite favorable reports, however, and a belief that it could obtain at least a 15.9 percent return on its total investment (PX 100; see App. 37a–38a, fn. 23), Pennsalt was doubtful as to the adequacy of the return (Tr. 636–687). Its uncertainty persisted through 1959 when decision on whether to build a combined ammonium perchlorate-sodium chlorate plant was postponed; the unilateral project was to be reconsidered only if "Olin [was] not desirous of proceeding further with [a] joint venture" then under discussion (PX 154, p. 2, PX 392, pp. 313–318). No final decision had been made at the time of the creation of Penn-Olin (see App. 36a–37a, and fn. 22).

Beginning in the 1950's, Olin, too, investigated the possibility of establishing a sodium chlorate plant in the eastern United States, and conducted various surveys and experiments toward that end (App. 35a). As late as October 1959 Olin's chemical division recommended construction of a 15,000-ton sodium

chlorate plant at Chattanooga, Tennessee, predicting a 13.1 percent return on gross investment after taxes (PX 32, p. 18, and revised pp. 50, 51). The basis for this recommendation was, *inter alia*, that demand for sodium chlorate would outstrip industry capacity by 1962 and had already done so in the southeast, and that Olin's projected market in the paper industry would net it about one-third of the southeastern tonnage (around 14,000 tons per year) (PX 32, p. 18). The chemical division felt that an independent plant was "definitely more of a possibility than it had been previously" (Tr. 474–477). Pennsalt, however, later came up with "new facts" in support of the joint venture, and Olin's management never finally decided to accept or reject the division's recommendation (Tr. 486; see App. 36a and fn. 22).

During the years when Pennsalt and Olin were conducting independent studies as to the feasibility of building their own plants, they also were having discussions about entering the southeastern market by means of some joint arrangement (App. 36a). The first such arrangement was a sales agreement of December 1957, which was aimed, in part, at testing jointly the southeastern market (App. 48a).[3] Under this agreement Pennsalt contracted to make available to Olin, as an exclusive seller, 2,000 tons of sodium chlorate per year for two or three years; and Olin agreed to sell the chemical "only to pulp and paper mills in the southeast," except for one company

[3] Previously (in 1953) the parties had entered into a licensing agreement, not related to the southeast, under which Olin promised to grant immunity from infringement suits to any pulp company designated by Pennsalt to use the Mathieson bleaching process (App. 11a; PX 60).

(Buckeye Cellulose Company of Foley, Florida) which Pennsalt "reserved the right to serve directly" (App. 48a).

The second joint arrangement was a so-called production agreement dated February 3, 1958, in which each agreed that "neither * * * should move in the chlorate or perchlorate field without keeping the other party informed," and each bound itself "to bring to the attention of the other any unusual aspects of this business which might make it desirable to proceed further with production plans" (App. 53a).

These agreements were in force until superseded by the joint venture arrangement of February 11, 1960 (see App. 48a). Formation of the joint venture was promptly announced in the hope that other potential competitors might thereby be deterred from entry and "the market might be preempted" (App. 33a).

4. THE DECISION OF THE DISTRICT COURT.

The district court found that the government had not shown that the effect of the joint venture "may be substantially to lessen competition" in violation of Section 7 of the Clayton Act.[4] It disregarded the Sherman Act challenge, noting merely that "the anti-competitive standard imposed by Section 7 of the Clayton Act is less stringent than that of the Sherman Act" (App. 6a–7a). The parties had stipulated that sodium chlorate was an appropriate line of commerce

[4] Finding no violation, the court did not pass upon the disputed issue of Clayton Act coverage—*i.e.*, whether the joint formation of Penn-Olin involved an "acquisition" of the stock or assets of a corporation "engaged * * * in commerce" (see App. 6a). This question is discussed *infra*, pp. 21–23.

(App. 7a), and that the southeastern United States was a relevant geographic market (App. 14a).[8] The court rejected the government's further contention that there was also a national market in sodium chlorate (App. 24a), and we do not press that claim here. In the southeastern market, the court found that Pennsalt and Olin had never been actual competitors (App. 26a).

The principal issue was whether the joint venture was unlawful in that it eliminated the potentiality of competition between Pennsalt and Olin in the southeastern market. On that point the court found that Pennsalt and Olin each had an extensive background in sodium chlorate (the former in manufacturing and selling, the latter in selling to the chief purchasers, as well as in the technical aspects of bleaching pulp) (App. 35a, 37a); that each had evinced long standing interest in independently entering the southeastern market (App. 34a–35a); that each possessed the resources and general capability needed to build its own plant in the southeast (App. 37a); and that the forecasts of each company indicated that an independently operated plant could be operated with profit (App. 37a–38a, and fn. 23). In addition, the court found that both Olin and Pennsalt could have been effective independent competitors of Hooker and

[8] There was some dispute between the parties as to which states made up the southeastern market. The court found that the market consisted of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia (App. 14a, fn. 6).

AmPot in the southeast (App. 37a). Finally, the court rejected Pennsalt's assertion that prior to the joint venture it had made a final decision not to enter the market alone (App. 36a).

However, the court ruled that potential competition between Pennsalt and Olin would be foreclosed only if the government proved that "as a matter of probability *both* companies would have entered the market as individual competitors" in the absence of the joint venture (App. 38a). Finding no evidence that Pennsalt and Olin would have *simultaneously* determined to build their own plants or that the construction of a plant by one would not have discouraged the other, the court concluded the best that could be said for the government's case was "that one company would have decided to build while the other continued to ponder" (App. 38a–39a).

As to the impact of the joint venture upon competition in the market generally, the court found that since the joint subsidiary would be a more effective competitor than either Pennsalt or Olin individually, the likely effect of the collaboration would be to increase, rather than diminish, competition (App. 41a–43a). The court also rejected the argument that the joint venture would impair the parties' existing competitiveness in other nonchlorate chemicals[8] (App. 47a). Finally, the court ruled that the parties' sales and production agreements (see pp. 10–11, *supra*) were neither *per se* unlawful, nor unlawful as part of

[8] Calcium hypochlorite was stipulated as the relevant nonchlorate line of commerce (App. 7a, and fn. 3). If probable jurisdiction is noted, we may argue that the joint venture also had the prohibited anticompetitive impact upon this line of commerce.

a larger course of action culminating in the joint venture (App. 44a, 53a, 55a).

THE QUESTION IS SUBSTANTIAL

This important antitrust case presents a novel question as to the standards governing the legality, under Section 7 of the Clayton Act and Section 1 of the Sherman Act, of "joint ventures" between industrial corporations.

Joint ventures of the Penn-Olin type—corporations whose stock is owned by two or more companies—are rapidly becoming a significant form of business association. In the chemical industry alone, 17 of the 54 leading corporations held interests, in 1958, in one or more joint subsidiaries.[7] Olin, for example, itself the outgrowth of a 1953 joint venture between Mathieson Chemical Corporation and Olin Industries, Inc. (PX 414, ¶¶ 35, 37), joined forces with Revere Copper & Brass, Inc. in forming the $250 million Ormet Corporation (and related subsidiaries) in 1956, and with Sun Oil Company, in establishing the $7 million SunOlin Chemical Company in 1958 (PX 414, ¶ 40). Pennsalt, too, in 1954 formed the Solar Salt Company primarily in conjunction with Hooker (PX 414, ¶ 42).

While the antitrust problems posed by this relatively recent phenomenon have received the attention of commentators,[8] the courts have had little occasion

[7] Comment, *Joint Subsidiaries and Section 7 of the Clayton Act*, 39 U. Det. L.J. 223, 224, citing Merrill Lynch, Pierce, Fenner & Smith, *Chemicals* (1958).

[8] See, *e.g.*, Kaysen & Turner, *Antitrust Policy*, pp. 136–141; Dixon, "*Joint Ventures: What is their Impact on Competition?*,"

to appraise the economic consequences of joint ventures. This Court has considered the question only in situations where it appeared that an explicit purpose of the venture was to restrain competition (*Timken Roller Bearing Co.* v. *United States,* 341 U.S. 593), or where the great power of the combination as a competitive weapon raised questions as to the propriety of the terms upon which competing non-members were permitted to participate (*Associated Press* v. *United States,* 326 U.S. 1). The experience of the lower courts has been similarly confined. See *United States* v. *Imperial Chemical Industries,* 100 F. Supp. 504 (S.D. N.Y.); *United States* v. *Minnesota Mining & Mfg. Co.,* 92 F. Supp. 947 (D. Mass.). Cf. *United States* v. *Pan American World Airways, Inc.,* 193 F. Supp. 18, 31–36 (S.D. N.Y.), reversed on other grounds, 371 U.S. 296. In the instant case the Court is called upon for the first time to determine the extent to which firms fully capable of entering a market independently, and interested in doing so, may choose instead to consolidate their efforts and occupy the market jointly, thereby permanently foreclosing the competition which each might otherwise have given the other as well as the companies already in the field.

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7 Antitrust Bull. 397; Hale, *Joint Ventures: Collaborative Subsidiaries and the Antitrust Laws,* 42 Va. L. Rev. 927; Rahl, *Applicability of the Clayton Act to Potential Competition,* 12 ABA Antitrust Sec. Rep., p. 128; Note, *The Corporate Joint Venture under the Antitrust Laws,* 37 N.Y.U.L. Rev. 712; Note, *Joint Ventures and Section 7 of the Clayton Act,* 14 Stan. L. Rev. 777; fn. 7, *supra.*

706-441—63——2

1. THE CLAYTON ACT VIOLATION

(a) Section 7 of the Clayton Act provides:

> That no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.

The district court properly recognized (App. 40a–41a) that the "lessening of competition" standard requires a comparison between the competitive situation brought about by the challenged transaction and the situation which, with reasonable probability, would have existed had the transaction not occurred. The relevant question, in its view, was whether there was a reasonable likelihood that both Pennsalt and Olin would, but for the decision to collaborate, have constructed independent plants in the southeast; if so, the joint venture, by foreclosing that potential competition, violated the Act. In appraising that likelihood, the court found that each company had the experience, the resources, and the general capability needed to build its own plant in the southeast and to compete in that market; each could have done so had it wished; each had a suitable plant site available; each had long been interested in the possibility of individual entry and still maintained that inter-

est right up to the time the joint venture was launched; and each forecast that it could operate in the southeast at a profit. Despite these findings, however, the court upheld the joint venture. Leaving open the question whether Pennsalt or Olin, considered individually, would probably have constructed a plant, the court emphasized that there was no evidence both companies would *simultaneously* have decided to enter the field or that the prior entry of one would not have deterred the other. Thus, it concluded, the "best possible postulate on which the Government's case can be based is that one company would have decided to build while the other continued to ponder" (App. 39a).

We take no issue with these findings of the district court, which are amply supported by the record. The findings, however, permit only one conclusion—that the formation of Penn-Olin constituted a violation of Section 7. To establish a reasonable probability that the joint venture had the proscribed anticompetitive effect, it was sufficient to show that each of the parent companies whose entry was foreclosed was capable of going into the southeastern market on its own and had seriously considered that possibility as an alternative to the joint venture. In insisting that the government go further and prove that neither company would have lost interest had it been "beaten to the punch" by the other, the court below adopted a wholly unrealistic and erroneous standard. Such a prediction would have been a matter of sheer speculation, especially since "[n]either company had ever faced the prob-

lem" and therefore the record afforded "no clue as to what action might have been taken if the problem had arisen" (App. 39a).

The evidence adduced by the government, showing capability plus interest, demonstrated to the degree of probability required by the statute that both Pennsalt and Olin might, in the long run if not immediately, have built a plant in the southeast. But even if the district court were correct in its view that the most favorable assumption was "that one company would have decided to build while the other continued to ponder," that hypothesis, without more, would be enough to condemn the joint venture. The formation of the joint subsidiary not only precluded the immediate entry of one of the parents, but also eliminated the prospect that the other parent, waiting in the wings, might have come into the market at some future time when competitive conditions invited. The very presence of one of the parents as a watchful potential, but not actual, competitor is a source of protection for purchasers and ultimately the consuming public. For its readiness to enter the market whenever the existing manufacturers charge excessive prices, limit production, or fail to exploit economic opportunities (*e.g.*, to develop more efficient productive techniques), acts as a spur to insure the competitive vigor of those already in the market.

The competition foreclosed by the joint venture was clearly substantial. At that time, only two companies, Hooker and AmPot, had plants in the southeast. Both Pennsalt and Olin were considering, and were

capable of, building plants with a capacity of at least 15,000 tons per year (see PX 32, p. 18, PX 100), an amount equal to AmPot's 1960 capacity in its only southeastern plant (Aberdeen, Mississippi). Moreover, the potential entrants each showed promise of becoming a vigorous competitor in this sluggish industry. In 1958, a Pennsalt analysis offered the following reasons in support of independent entry into the southeastern market (PX 146, p. 2):

> 4. As the newest producer, Pennsalt should and could take leadership in (1) promoting sales aggressively, (2) extending existing uses, (3) developing new uses, (4) improving use technology.

Olin, prior to entering the sodium chlorate market, had waged a vigorous campaign to enhance the already widespread acceptance of its chlorine dioxide process by the paper industry (see p. 8 and fn. 2, *supra*). And it considered the production of sodium chlorates as a means whereby it could "get a return on the effort put into chlorine dioxide generation installations" (PX 254, introduction, ¶b).

Indeed, the formation of Penn-Olin, and the assignment of specialized sales and production functions to the two parents, caused a discontinuance of creative experiments both were already making in the sodium chlorate field. Pennsalt had been conducting experiments to develop new uses for sodium chlorate in textile bleaching, but did not look forward to continuing if it were not given sales authority for Penn-Olin; Olin was later selected as a joint subsidiary's sales

agent (PX 215, PX 399, pp. 101–103). Olin, which had not been assigned the task of handling Penn-Olin's production, cancelled its efforts to produce sodium chlorate at a lower cost (PX 56, p. 4, PX 401, pp. 29–30, PX 406, pp. 169–170).

It should be emphasized, finally, that this is not a case in which two companies have combined their resources in order to overcome substantial barriers to independent entry or to share risks or expenses too great to be borne by either company alone. Such collaborations, characteristic of infant or speculative industries where bold innovation or pioneering research is required, present a more difficult case. But whatever might be said in justification of a joint venture in those circumstances plainly cannot be said here. Sodium chlorate is a long-established industry already occupied by two other major companies. The Penn-Olin plant is not unusual in design or operation. Production of the chemical was a logical extension of the past business of each parent. And the southeastern area was one in which demand for additional sodium chlorate was already known to exist.

In sum, the effect of the Penn-Olin joint venture was "substantially to lessen competition" in the production and sale of sodium chlorate in the southeastern United States.

(b) There remains, under Section 7, a further question not reached by the court below, *i.e.*, whether the formation of Penn-Olin amounted to an acquisition of stock in "another corporation engaged * * * in commerce * * *." That statutory requisite, we submit, was clearly satisfied. Penn-Olin was organized for the sole purpose of engaging in interstate commerce, and from the moment of its inception there was no time in which it was not producing and selling chemicals in commerce or actively preparing to do so.

The joint subsidiary was incorporated on February 25, 1960, pursuant to an agreement between the parents reached two weeks earlier (App. 5a). Pennsalt and Olin, each of which was eventually to acquire a total of 500 shares, purchased one share apiece on March 22, 1960, and an additional 75 shares in November 1960 (PX 306, PX 317, PX 320). Each did not purchase its remaining 424 shares, however, until 1961 (200 in January, 100 in February, and 124 in March (PX 309, PX 313, PX 316, PX 322–PX 324)). Meanwhile, even prior to Penn-Olin's incorporation, freight rate studies, site location studies, and technological investigations had been undertaken on its behalf (*e.g.*, PX 189, PX 197, PX 205). While the parents still had only one share apiece, the subsidiary began its sales development efforts, and solicited sales (PX 226, PX 232, pp. viii–x, PX 408, pp. 75–76). Actual sales commenced in January 1961 (PX 286, PX 336–PX 338). It is plain, therefore, that Penn-Olin was "engaged in commerce," within the meaning of Section 7, both before and during the

period in which Pennsalt and Olin were acquiring its stock. Cf. *Aluminum Co. of America* v. *Federal Trade Commission*, 284 Fed. 401, 408 (C.A. 3) (holding that the acquisition by Alcoa of a new corporation formed to take over part of the existing operations of a different company violated Section 7).

A contrary conclusion would wholly vitiate the congressional purpose, expressed in the amended Section 7, to limit corporate expansion through mergers. In practical effect, the joint venture here, like any merger, amounted to a combination of the existing assets of two corporations. Indeed, a member of Penn-Olin's board of directors considered the joint subsidiary as a vehicle by means of which "Pennsalt would use its own employees and Olin its own existing sales people to carry out the functions of the Penn-Olin Company" (PX 394, p. 71). The president of each of the parents likewise regarded the joint subsidiary as a mechanism by which some of the assets of both companies would be combined.[8] Plainly, a pooling of resources with the proscribed anti-competitive effect cannot gain immunity from Section 7 merely because it is accomplished, not through the

[8] Pennsalt's president felt his company would be "utilizing an asset [Olin's sales organization] which our partner has in this venture," and stated that Pennsalt's contribution to the joint venture would be its "manufacturing know-how and experience in operating the plant" and that Olin would contribute "its assets in terms of sales, technical service and the like" (PX 392, pp. 277–278, 353). Olin's president believed that his company, by "contributing dollars and our marketing ability * * * would be buying in the joint venture Pennsalt's years of experience * * * and their operating know-how * * *" (PX 402, p. 64).

acquisition of the stock or assets of one existing company by another, but rather through a joint acquisition of stock in a new entity to which both companies transfer their assets. To hold otherwise would be to encourage "evasive transactions" resulting in a "blunting of the antimerger thrust of the section." Cf. *United States* v. *Philadelphia Nat. Bank*, 374 U.S. 321, 346.

2. THE SHERMAN ACT VIOLATION

The district court, concluding that the formation of Penn-Olin did not violate the Clayton Act, did not discuss the further issue whether it violated the Sherman Act. *Brown Shoe Co.* v. *United States*, 370 U.S. 294, 329 (App. 6a–7a). If this Court agrees with us that the joint venture was an offense under Section 7, the question of its legality under Section 1 of the Sherman Act need not be reached. However, if the Court were to conclude that the transaction did not come within Section 7 because Penn-Olin was not "engaged * * * in commerce" at the time its stock was acquired, the Sherman Act issue would have to be decided.

The same considerations, we submit, which compel the conclusion that the joint venture had the anticompetitive effect proscribed by Section 7, also condemn the arrangement as a contract or combination "in restraint of trade or commerce" under Section 1 of the Sherman Act. Although the 1950 amendments to the Clayton Act promulgated a "standard of illegality stricter than that imposed by the Sherman Act" and were intended to arrest monopolistic tendencies "in their incipiency and well before they

have attained such effects as would justify a Sherman Act proceeding * * *" (see *Brown Shoe Co., supra,* fn. 33, at 319), we believe that the concerted action involved here violates both standards. The Sherman Act, like the Clayton Act, outlaws restraints of potential as well as of actual competition. *United States* v. *Patterson,* 59 Fed. 280, 283 (Mass.). See *United States* v. *United Shoe Machinery Co.,* 247 U.S. 32, 53. So far as the public interest is concerned, stated Judge Learned Hand in *United States* v. *Aluminum Co. of America,* 148 F. 2d 416, 429 (C.A. 2):

> it can make no difference whether an existing competition is put an end to, or whether prospective competition is prevented.

The anticompetitive consequences of this combination do not turn upon the form in which it took place, *i.e.,* that the joint venture was accomplished through the creation of a jointly-owned subsidiary rather than by a merger or other direct combination. The critical question is the effect of the combination upon competition, and the arguments we have developed in showing that this arrangement violates the substantive anticompetitive standards of Section 7 of the Clayton Act also establish that it violates the Sherman Act.

CONCLUSION

For the foregoing reasons, we respectfully submit that probable jurisdiction should be noted.

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SEPTEMBER 1963.

APPENDIX

UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

UNITED STATES OF AMERICA, PLAINTIFF

v.

PENN-OLIN CHEMICAL COMPANY, OLIN MATHIESON CHEMICAL CORPORATION AND PENNSALT CHEMICALS CORPORATION, DEFENDANTS

OPINION

ALEXANDER GREENFELD, Esquire, and LEONARD G. HAGNER, Esquire, District of Delaware, Wilmington, Delaware; DANIEL J. FREED, Esquire, and EDWARD A. COPLEY, Esquire, Justice Department, Antitrust Division, Washington, D.C., attorneys for United States of America.

WILLIAM S. POTTER, Esquire (Berl, Potter & Anderson), Wilmington, Delaware, for all defendants; H. FRANCIS DELONE, Esquire, and JOHN T. SUBAK, Esquire (Dechert, Price & Rhoads), Philadelphia, Pennsylvania, attorneys for Pennsalt Chemicals Corporation; ALBERT R. CONNELLY, Esquire and JOHN W. BARNUM, Esquire (Cravath, Swaine & Moore), New York City, attorneys for Olin Mathieson Chemical Corporation.

STEEL, J.:

The Government has brought a civil action against Penn-Olin Chemical Company (Penn-Olin), Olin

Mathieson Chemical Corporation (Olin), and Pennsalt Chemicals Corporation (Pennsalt), in which it seeks to prevent and restrain them from allegedly continuing to violate Section 1 of the Sherman Act, 15 U.S.C. § 1, and Section 7 of the Clayton Act, 15 U.S.C. § 18.[1]

The primary attack of the Government is directed against a joint venture between Pennsalt and Olin, pursuant to which they jointly organized and have controlled Penn-Olin for the purpose of having it construct a plant at Calvert City, Kentucky, to produce and sell sodium chlorate. The Government charges that the effect of the joint venture and of the action of the parties thereunder may be to substantially

[1] Section 1 of the Sherman Act provides in pertinent part:

"Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several states * * * is declared to be illegal."

Section 7 of the Clayton Act reads in pertinent part:

"No corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.

* * * * *

"This section shall not apply to corporations purchasing such stock solely for investment and not using the same by voting or otherwise to bring about, or in attempting to bring about, the substantial lessening of competition. Nor shall anything contained in this section prevent a corporation engaged in commerce from causing the formation of subsidiary corporations for the actual carrying on of their immediate lawful business, or the natural and legitimate branches or extensions thereof, or from owning and holding all or a part of the stock of such subsidiary corporations, when the effect of such formation is not to substantially lessen competition."

lessen competition and tend to create a monopoly not only in sodium chlorate, but also in other nonchlorate chemicals, in violation of Section 1 of the Sherman Act and Section 7 of the Clayton Act. By an amendment to its complaint the Government has also charged that agreements between Pennsalt and Olin entered into in December 1957 and February 1958, denominated, respectively, the "sales agreement" and the "production agreement," restrain trade and commerce in sodium chlorate in violation of Section 1 of the Sherman Act.

JURISDICTION

The Court has jurisdiction over the person of each defendant, and by virtue of Section 15 of the Clayton Act, 15 U.S.C. § 25, and Section 4 of the Sherman Act, 15 U.S.C. § 4, it has jurisdiction over the subject matter of the action.

THE DEFENDANTS

Pennsalt is a Pennsylvania corporation with its principal place of business in Philadelphia, Pennsylvania. It is a chemical company engaged in the production and sale of about 400 chemicals and chemical products, at 15 plants located in 11 states as follows:

Alabama	Ohio
California	Oregon
Georgia	Pennsylvania (2 plants)
Illinois	Texas (3 plants)
Kentucky (2 plants)	Washington
Michigan	

Pennsalt's nationwide sales operations are conducted from its headquarters in Philadelphia and from 18 regional offices located in 13 states as follows:

Alabama	Ohio (2 offices)
California (3 offices)	Oregon
Georgia	Pennsylvania
Illinois (2 offices)	Texas (2 offices)
Michigan	Washington
Missouri	Wisconsin
New York	

Pennsalt has been engaged in the chemical business for over 110 years. In 1960 its sales amounted to over $90,000,000 on which it earned almost $5,000,000. During the same year, its assets were approximately $90,000,000. Since 1958 it has been engaged in a $55,000,000 capital investment program for the modernization and expansion of existing facilities and the construction of new ones.

Olin is a corporation organized under the laws of Virginia with its principal place of business in New York City. It is a diversified industrial corporation. The Chemical Division is one of seven operating divisions, and accounts for approximately 30% of the corporation's operating revenues. Olin's Chemicals Division produces a great number and variety of chemicals and chemical products from plants located in 15 states as follows:

Alabama	Mississippi
Arizona	Nebraska
Arkansas	New York
Georgia	North Carolina
Illinois	Pennsylvania
Kentucky	Texas
Louisiana	Virginia
Maryland	

Olin was formed in 1954 by the merger of Olin Industries, Inc., and Mathieson Chemical Corporation. Olin's activity in the chemical business reaches back,

through its predecessor, Mathieson Chemical Corporation, to 1892. In 1960 Olin had sales of $690,000,000, on which it earned a net profit of $35,000,000. Its assets during that year amounted to $860,000,000. During 1960 its capital expenditures were almost $49,000,000. Net sales of its chemical division in 1960 amounted to $217,000,000.

Penn-Olin is a Delaware corporation which was organized on February 25, 1960, by Olin and Pennsalt pursuant to a joint venture agreement between them dated February 11, 1960. Pennsalt and Olin each own one-half of Penn-Olin's capital stock. The officers of Penn-Olin are divided equally between officers of Pennsalt and officers of Olin. The board of directors of Penn-Olin is comprised equally of representatives of Pennsalt and those of Olin. Penn-Olin has no officers, directors, or employees who are not concurrently employed by either Pennsalt or Olin. Penn-Olin constructed a plant at Calvert City, Kentucky, at a cost of $6,454,000 for the production of 26,500 tons of sodium chlorate per year. It commenced production on September 1, 1961. By agreements executed in October 1961, dated as of January 2, 1961, Pennsalt undertook to operate the Penn-Olin plant and Olin agreed to sell its output.

All of the defendants are engaged in interstate commerce.

THE ASSERTED ILLEGALITY OF THE JOINT VENTURE

The Government claims that each of the defendants was engaged in interstate commerce at the time when Pennsalt and Olin acquired the stock of Penn-Olin, that the acquisition of such stock was tantamount to an indirect acquisition by Pennsalt and Olin of the assets of the other at a time when each was subject to the jurisdiction of the Federal Trade Commission, and

that the joint venture and the actions taken thereunder may result in a substantial lessening of competition in one or more sections of the country, or tend to create a monopoly, in sodium chlorate and other nonchlorate chemicals. For these reasons it is charged that Section 7 of the Clayton Act has been violated. The Government also charges that regardless of whether the joint venture involved an acquisition of stock or assets banned by Section 7 of the Clayton Act, it nevertheless constituted a combination in restraint of trade in violation of Section 1 of the Sherman Act.

The defendants deny the anticompetitive or monopolistic effect of the joint venture and assert that competition in the manufacture and sale of sodium chlorate has been increased by Penn-Olin entering the field. Defendants also contend that Section 7 of the Clayton Act is without application because, defendants say, Penn-Olin was not engaged in commerce when its stock was acquired by Olin and Pennsalt, and neither Olin nor Pennsalt acquired any interest in the assets of the other when they acquired Penn-Olin stock.[2]

The last defense will not be discussed since, for the reasons hereafter stated, the joint venture did not have the anticompetitive effect at which Section 7 was aimed. The Sherman Act challenge will also be dis-

[2] Defendants also argue that if these contentions are rejected, Penn-Olin must be regarded as a subsidiary of Olin and Pennsalt formed to carry on a lawful extension of their business, within the contemplation of the third paragraph of Sec. 7 of the Clayton Act (the second paragraph of the Act quoted in footnote 1). Hence, it is argued that defendants have violated Section 7 only if the effect of Penn-Olin's organization "is" and not "may be" substantially to lessen competition. It is unnecessary to consider this point in view of the determination that the joint venture probably will not adversely affect competition.

regarded, for the anticompetitive standard imposed by Section 7 of the Clayton Act is less stringent than that of the Sherman Act. *Brown Shoe Co.* v. *United States*, 370 U.S. 294, 329 (1962).

Broadly speaking, the Section 7 issues to be resolved are whether the effect of the joint venture:

1. May be to substantially lessen competition or tend to create a monopoly;
2. In any section of the country;
3. In any line of commerce.

These questions will be discussed in inverse order:

THE RELEVANT LINES OF COMMERCE

The parties agree that two "line[s] of commerce" within the meaning of Section 7 of the Clayton Act are relevant to this case: sodium chlorate, and of the nonchlorates, calcium hypochlorite.[3]

Sodium Chlorate

Sodium chlorate is a white crystalline chemical. It is produced commercially by the electrolysis of an acidified solution of salt (sodium chloride). The

[3] The parties have stipulated: Olin and Pennsalt each produce and sell in commerce in the United States the following nonchlorates: ammonia, calcium hypochlorite, caustic soda, chlorine, hydrochloric acid, hydrofluoric acid and sulphuric acid. Competition, if any, in the sale of hydrochloric acid and sulphuric acid is *de minimus*. Olin and Pennsalt compete in the sale of the remaining five chemicals. Of these, calcium hypochlorite has been selected as a "guinea pig" to determine whether the joint venture constitutes a violation of the antitrust laws in the case of nonchlorate chemicals. The presence or absence of substantial competition between Olin and Pennsalt with respect to the production and sale of ammonia, caustic soda, chlorine, and hydrofluoric acid or of the existence of any relevant market for such chemicals, is not relevant to the determination of any issue in the case.

process is closely akin to that used in the commercial production of chlorine and caustic soda. Sodium chlorate of like purity is a fungible commodity. Any which is produced for sale by a domestic producer is reasonably interchangeable with that of any other domestic producer.

In 1960 over 91,000 tons of sodium chlorate, valued at close to $18,000,000, were produced in the United States. The domestic production of sodium chlorate has increased greatly within the last ten years. From 1950–55, the domestic production of sodium chlorate more than doubled, rising from 22,085 tons in 1950 to 46,972 tons in 1955. From 1950–60, the production of sodium chlorate more than quadrupled, rising from 22,085 tons in 1950 to 91,900 tons in 1960.

In 1960, over 54,600 tons of sodium chlorate were produced east of the Rockies and 37,300 tons produced west. At the prevailing prices (9 cents per pound in the east and 10½ cents per pound in the west), eastern production was valued at over $9.8 million while western production amounted to $7.8 million.

The largest consumer of sodium chlorate is the pulp and paper industry. That industry uses sodium chlorate in the bleaching of pulp for brighter, higher quality paper. The pulp and paper manufacturers use sodium chlorate as a principal raw material to generate chlorine dioxide, a gaseous material which possesses the unique ability to bleach cellulose fibers to a maximum whiteness with little or no loss of fiber strength. In 1958 70,541 tons of sodium chlorate were used commercially in the United States. Of this, 29,000 tons, or 41.1%, were used in pulp and paper bleaching. The next largest amount, 16,100 tons, or 22.8%, was used for herbicides (weed control). In 1960, the national shipments amounted to 81,928 tons of which 52,415, or 64%, were for pulp and paper mill

consumption. Of the 47,036 tons shipped into the southeast in 1960, 39,563 tons, or 84%, were consumed by pulp and paper mills.

The recent growth of the sodium chlorate market is largely due to the adoption and rapid expansion of chlorine dioxide bleaching in the pulp industry.

In addition to its use by the pulp and paper industry, sodium chlorate is also used in agricultural chemicals (herbicides and defoliants) and in the production of ammonium perchlorate and other derivatives.

Since 1953 and prior to Penn-Olin, three producing companies, or their predecessors, have constituted the sodium chlorate industry in the United States: Hooker Chemical Corporation (Hooker), American Potash & Chemical Corporation (AmPot), and Pennsalt. Imports of sodium chlorate, stipulated to have been not substantial, have been as follows:

1956	892 tons
1957	335 tons
1958	1,322 tons
1959	2,596 tons
1960	4,152 tons

Hooker is the largest producer and seller of sodium chlorate in the United States. In 1956 Hooker acquired Oldbury Electro Chemical Company (Oldbury) which had produced sodium chlorate at Niagara Falls, New York, since about 1900 and which, in 1954, had constructed a plant in Columbus, Mississippi, to meet the growing demand for sodium chlorate in the southeast. At the time when Oldbury constructed its Columbus plant, it had no other facilities or activities at or near Columbus. The capacity of Hooker's Columbus plant was increased in 1956, 1958, and 1960; the capacity of the Niagara Falls plant was decreased in 1961. The capacity of Hooker's two plants has been as follows:

	Niagara Falls	Columbus
1957	12,000 tons	17,435 tons
1958	12,000 tons	21,340 tons
1959	12,000 tons	29,150 tons
1960	18,000 tons	32,000 tons
1961	14,000 tons	32,000 tons

In 1960 Hooker had assets of $187,000,000 and net sales of $150,000,000.

AmPot is the second largest producer and seller of sodium chlorate in the United States. It entered the business in November 1955 by acquiring Western Electro Chemical Company (Western). The latter had a single plant at Henderson, Nevada, where it had produced sodium chlorate since 1941. In February 1957 AmPot authorized construction of a sodium chlorate plant at Aberdeen, Mississippi, to meet the growing demand in the southeast, and to compete effectively in that market with Hooker's Columbus, Mississippi, plant. AmPot has twice expanded the capacity of the original Aberdeen plant. The capacity of the two AmPot plants has been as follows:

	Henderson	Aberdeen
1957	27,000 tons	----------
1958	27,000 tons	----------
1959	27,000 tons	12,000 tons
1960	27,000 tons	15,000 tons
1961	28,000 tons	22,500 tons

In 1959 the total assets of AmPot were $73,000,000 and its net sales in that year were $50,500,000. AmPot uses the Solvay Process Division of Allied Chemical and Dye Corporation (Allied Chemical) as its sales agent for sales of sodium chlorate to the pulp and paper and textile industries. Allied Chemical is a leading producer and seller of chemicals in the United States. Allied Chemical uses its large sales force and large technical service facilities and the Solvay process for generating chlorine dioxide in selling sodium chlorate produced by AmPot. In 1960 Allied Chemical had assets of $801,000,000 and sales and operating revenues of $766,000,000.

When AmPot's sodium chlorate plant at Aberdeen went on stream, Solvay was almost entirely responsible for selling the output of that plant. Today, the direct selling of the Aberdeen sodium chlorate output is largely AmPot's responsibility. AmPot contributes approximately 70% of the direct selling effort.

The percentages of sodium chlorate sales made by Hooker and AmPot in 1960 were as follows:

	U.S.	East of	Southeast
Hooker	45.9%	54.6%	49.6%
American Potash	35.6%	37.9%	41.7%
Totals	81.5%	92.5%	91.3%

Pennsalt has produced sodium chlorate at Portland, Oregon, since 1941 which it has sold principally west of the Rockies. The following tabulation sets forth its initial productive capacity at Portland and its expansion of that plant to date:

	Tons per year
October 1941	2,194
October 1942	3,448
January 1943	4,248
December 1949	5,448
February 1954	7,848
October 1957	12,392
October 1959	15,392

Until the early 1950's, Pennsalt sales of sodium chlorate were principally for herbicidal use and virtually no sales were made to pulp and paper mills. At that time Solvay, which was selling sodium chlorate produced by AmPot, began offering its chlorine dioxide process to the pulp and paper industry conditioned upon the user purchasing its sodium chlorate requirements exclusively from Solvay. This led Pennsalt, in mid-1953, to enter into an agreement with Mathieson under which Pennsalt was permitted to install the Mathieson process in all the paper mills in the northwest.[4] After this occurred, Solvay was

[4] See footnote 5.

never again successful in putting in its process in the northwest, and by 1960 Pennsalt had attained 100% of the sodium chlorate business of the western pulp and paper industry.

In July 1961 a fourth company, Pittsburgh Plate Glass Company (PPG), announced that it would construct a 15,000 ton per year sodium chlorate plant at Lake Charles, Louisiana. PPG is a large, diversified industrial corporation which produces and sells chemicals through its Chemical Division, formerly a subsidiary company, Columbia Southern. PPG has large technical service, sales, market research, and laboratory forces already serving the southeastern pulp and paper industry. In 1960 PPG had total assets of $625,000,000 and net sales of $628,000,000.

A fifth company, Pacific Engineering & Production Company of Nevada (Pacific), with the aid of a loan of $2,400,000 from American Cyanamid Company, is constructing at Henderson, Nevada, a sodium chlorate plant with a capacity of 5,000 tons per year to commence production late in 1962. For its loan American Cyanamid received a promissory note of Pacific secured by deed of trust on all of Pacific's assets, an option to receive license on Pacific's processes, and an option to acquire all the assets of Pacific or 50% of its common stock. American Cyanamid is a leading producer and seller of chemicals in the United States.

Olin has never manufactured sodium chlorate for sale or been an independent seller of it. For years, however, it and its predecessor Mathieson has manufactured sodium chlorite which was sold to pulp and paper mills. The sodium chlorite, when dissolved in an acid solution by the mills, generated chlorine dioxide which the mills used as a bleaching agent for

the pulp.[5] The raw material used in the manufacture of sodium chlorite is sodium chlorate. In the early 1930's Mathieson produced sodium chlorate chemically for its own use in manufacturing sodium chlorite. During the late 1930's it stopped manufacturing sodium chlorate and turned to buying it. Approximately 5,000 tons of sodium chlorite are sold in the United States annually. Olin is the only domestic producer and 1960 was its best year.

Calcium Hypochlorite

Calcium hypochlorite, like sodium chlorate, is used in the production of pulp and paper. There are three important competitors in calcium hypochlorite: Olin, Pennsalt, and PPG.

In 1959 Pennsalt and Olin together accounted for $6,480,000 sales, or 88.8% of all calcium hypochlorite sold in the United States. Their respective market shares were:

Olin	62.4%
Pennsalt	26.4%

In 1960 Pennsalt and Olin accounted for 76.6% of the $6,900,000 sales of calcium hypochlorite throughout the United States. Ninety-nine percent of each

[5] As a result of research which Mathieson did in chlorine dioxide, it developed the so-called Mathieson process for generating chlorine dioxide to bleach pulp without damaging the fibers. The process was designed to sell sodium chlorite as a new commercial chemical.

While the process of releasing chlorine dioxide from sodium chlorite is relatively easy and inexpensive compared to the generation of chlorine dioxide from sodium chlorate, in large scale production there is a three to one cost advantage in bleaching with chlorine dioxide made from chlorate instead of chlorite. This led Olin to realize that sodium chlorate would soon become the raw material for the process. In the early 1950's therefore Olin began to make its chlorine dioxide generation process available free to pulp and paper industry.

company's sales were made in 43 states where both sold the product.

The competition between Olin and Pennsalt in the sale of calcium hypochlorite is substantial.

THE RELEVANT MARKET

Section 7 of the Clayton Act is aimed at a substantial lessening of competition in "any section of the country," or, as the statute is frequently paraphrased, in any relevant market. Whether a given transaction may substantially lessen competition depends upon its probable effect in a relevant market. *Tampa Electric Co.* v. *Nashville Coal Co.*, 365 U.S. 320, 329 (1961). The delineation of a relevant market is therefore a necessary predicate for determining the anticompetitive effect of any transaction challenged under Section 7. *Brown Shoe Co.* v. *United States, supra,* p. 335.

Calcium Hypochlorite

In calcium hypochlorite the parties agree that the national market is the relevant one.

Sodium Chlorate

The parties likewise agree that there is a relevant southeastern market in sodium chlorate, and although they define this market somewhat differently, the difference is not significant.*

* The Government asserts that the southeastern market includes Alabama, Arkansas, Florida, Georgia, Kansas, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Defendants say that Kansas, Missouri, and West Texas should be excluded. According to the Government, the exclusion of these two and one-half states makes scant difference. Consequently, in the following discussion Kansas and Missouri will be excluded, but the whole of Texas will be included. No evidence warrants splitting Texas and much of the evidence bearing upon competition treats it as an entity.

But here agreement ends. The Government claims that there are two other relevant markets: the national market and the eastern market.

The national market, as the name implies, embraces the entire continental United States, except Alaska. The finding of a national market is important in the Government's view because it is said to put Pennsalt, Olin, and Penn-Olin in the same area, to establish that Pennsalt and Olin should have been actual competitors, as a matter of law, at the time of Penn-Olin's creation, and to determine that Pennsalt and Penn-Olin were actual competitors, as a matter of law, following Penn-Olin's creation. Defendants deny that a national market exists.

The eastern market is defined as the entire United States east of the Continental Divide. It excluded only the states lying west of the Rocky Mountains, viz, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Defendants say that the statistical analysis of the competitive effect of Penn-Olin is the same regardless of whether the eastern or southeastern market is deemed to be relevant, and that it is immaterial whether there is a relevant eastern market. This position, asserted both in defendants' brief and at the argument, was not controverted by the Government. It has made no effort to show a difference, significant in antitrust law, between the competition effect of the challenged transactions in the so-called eastern as against the southeastern market. The Court does not therefore feel called upon to make an independant analysis of the problem. So the issue is the narrow one whether the southeast is the only relevant market, or whether there is a relevant nationwide market as well.

A market is relevant in determining whether a given transaction may substantially lessen competition only if it is an area of effective competition. *Standard Oil Co.* v. *United States*, 337 U.S. 293, 300 n. 5 (1949); *United States* v. *Maryland Virginia Milk Producers Ass'n.*, 167 F. Supp. 799, 802 (D.D.C. 1958), aff'd 362 U.S. 458 (1960). The two terms—area of effective competition and relevant market—are synonymous. *Tampa Electric Co.* v. *Nashville Coal Co., supra*, p. 328.

Whether a geographic location is or is not an area of effective competition in a given case is a question of fact. Congress prescribed a pragmatic, factual approach to the definition of the relevant market and not a formal legalistic one. The geographic market in which the anticompetitive effect of a transaction is to be tested must both correspond to the commercial realities of the industry and be economically significant. *Brown Shoe Co.* v. *United States, supra*, pp. 336-337 (1962). It can be defined only in the light of the overall objectives of Section 7 and with particular recognition that it is being defined for the purpose of determining the reasonable probability of substantially lessening competition. *United States* v. *Bethlehem Steel Corp.*, 168 F. Supp. 576, 588 (S.D.N.Y. 1958).

When Pennsalt and Olin entered into the joint venture, there were only three companies in the United States which produced sodium chlorate for sale commercially: Hooker, AmPot, and Pennsalt. Pennsalt had only one plant. It was on the west coast at Portland, Oregon. Hooker had two plants, both in the east. One was at Niagara Falls, New York, and the other at Columbus, Mississippi. AmPot had two plants—one in the east at Aberdeen, Mississippi, and the other in the west at Henderson, Nevada. The

Mississippi installations of AmPot and Hooker were both in the southeastern market.

The southeastern market was the one in which there was the heaviest concentration of sodium chlorate buyers.[7] Of the buyers, the pulp and paper mills were far and away the largest.[8] Plants having almost half of the national sodium chlorate productive capacity were also located in the southeast.[9]

After the southeast, the largest concentration of buyers and the largest productive capacity were in the 11 states west of the Rocky Mountains.[10]

In 1960, therefore, the two most important markets in the United States, both from the standpoint of consumption and production, were first, the southeastern market, and second, the western market. Of foremost importance in determining whether there was a nationwide relevant market is the question whether western shippers could compete effectively in the

[7] Out of 82,094.70 tons shipped in 1960 within the United States, 47,035.76, or 57.3%, went to the southeastern market. Of the remainder, 18,152.72 tons, or 22.2%, were shipped west of the Rockies, and the balance of 16,906.22, or 20.5%, went elsewhere.

[8] In 1960, of the 47,035.76 tons of sodium chlorate shipped to southeastern buyers, 39,562.83 tons, or 84.1%, were purchased by the pulp and paper industry. The amount so purchased represented 75.5% of the 52,415.03 tons purchased by all of the pulp and paper mills in the United States.

[9] As against the 1960 national productive capacity of 107,434 tons, plants having a tonnage capacity of 47,000 tons were in the southeast, viz, Hooker at Columbus, Mississippi, with 32,000 tons, and AmPot at Aberdeen, Mississippi, with 15,000 tons. The capacity of the latter was increased to 22,500 in December 1960.

[10] See footnote 7 as to buyer concentration. The productive capacity of the Pennsalt plant at Portland was 15,434 tons and that of AmPot at Henderson was 27,000 tons, making a total of 42,434 tons, as against the total national productive capacity of 107,434 tons.

southeast, and southeastern producers could compete effectively in the 11 western states. Unless they could, there was no relevant national market.

Normally of vital importance to competitive effectiveness are quality, price, and service. So far as appears, neither AmPot, Hooker, or Pennsalt enjoyed any advantage over the other in the quality of its product. From the standpoint of both price and service, Pennsalt was at a decided disadvantage, as against AmPot and Hooker, in supplying buyers in the southeast.

Pennsalt's price disadvantage resulted from the cost of transportation which it had to bear. To be competitive in the southeast, Pennsalt was faced with the necessity of absorbing the difference between the freight from its Portland plant and the buyer, and the freight between the buyer and the closest southeastern supplier. The freight disadvantage to AmPot in shipping a ton of sodium chlorate into the southeastern market from Henderson, Nevada, as against shipping it from Aberdeen, Mississippi, was approximately $25 to $30 a ton. This represented about 15% of the delivered price of $163 a ton. The freight disadvantage to Pennsalt was even greater.

A competitive price disadvantage arising from transportation costs is an important factor in determining the scope of a relevant market. *United States* v. *Columbia Steel Co.*, 334 U.S. 495 (1948), reh. den. 334 U.S. 862 (1948); *American Crystal Sugar Co.* v. *Cuban-American Sugar Co.*, 152 F. Supp. 387, 398 (S.D.N.Y. 1957), aff'd 259 F. 2d 524 (2d Cir. 1958); *Erie Sand & Gravel Co.* v. *F.T.C.*, 291 F. 2d 279, 281–282 (3d Cir. 1961). The record fails to suggest that Pennsalt was in a position to surmount or equalize its freight disadvantage because of lower operational costs, or otherwise.

Remoteness from southeastern buyers also placed Pennsalt at a service disadvantage. To pulp and paper manufacturers prompt delivery is a matter of importance. Delivery time for a shipment from Mississippi to the southeastern market is normally two to four days. Shipments from the northwest take ten to fourteen days. The chances of shipping delays increase as the distance between supplier and customer becomes greater. When Olin was acting as selling agent for Pennsalt under the December 1957 contract, Olin encountered buyer resistance because Pennsalt's production was located at a substantial distance from the market.

In addition, a buyer wants an assured source of supply. A remote seller such as Pennsalt who is called upon to absorb substantial freight costs cannot be viewed as a stable source of supply. It will, in all likelihood, favor buyers in its own vicinity whenever the supply situation becomes tight. This would appear to be particularly true in the case of Pennsalt since for many years both the bulk price and the drum price of sodium chlorate has been higher west of the Rockies than east of the Rockies. This price differential of about 15%, coupled with the freight equalization with which Pennsalt is burdened, would, in times of short supply, naturally cause Pennsalt to favor west coast purchasers at the expense of buyers in the southeast. The proximity of productive facilities in terms of the availability to a buyer of service and supply is also important in the delineation of a relevant market. *Crown Zellerbach Corp.* v. *F.T.C.*, 296 F. 2d 800, 817 (9th Cir. 1961), cert. den. 370 U.S. 937 (1962). See also *Tampa Electric Co.* v. *Nashville Coal Co., supra,* pp. 331–333.

The disadvantages inherent in the distance of Pennsalt's plant from southeastern buyers prevented

Pennsalt from effectively competing against suppliers with plants in that area. To Pennsalt, the southeast was not a "natural locus of distribution." *American Crystal Sugar Co.* v. *Cuban-American Sugar Co., supra,* p. 398. Pennsalt's proximity to pulp and paper manufacturers in the northwest made that market the natural distributional area for it. In 1960 Pennsalt supplied 100% of the sodium chlorate bought by pulp and paper manufacturers in the northwest.

The Government answers that Pennsalt's competitive handicaps are theoretical only. It argues that despite Pennsalt's natural, freight, or other burdens, it has hurdled all obstacles, and by its actual shipments across country has demonstrated its ability to effectively compete in the southeast. Theory, the Government says, is of little consequence as against the facts. *United States* v. *Bethlehem Steel Corp., supra,* pp. 592, 599.

The Government points out that in 1960 Pennsalt shipped across country 4,877 tons of sodium chlorate, or 32% of its total shipments of 15,362 tons. The key factor which enabled Pennsalt to do this is said to have been the substantial excess of eastern demand over production.

Despite the Government's assertion of a substantial imbalance between supply and demand in the "eastern" market, none existed in the southeast. The total shipments of sodium chlorate to the southeast during 1960 was 47,035.76 tons. The total capacity of the southeastern plants was 47,000 tons: Hooker at Columbus, 32,000 tons; AmPot at Aberdeen, 15,000 tons. In 1960 the southeastern market was not a deficit area.[11]

[11] The supply situation was to be further improved in December 1960 when AmPot's capacity at Aberdeen was increased by 7,500 tons. This brought the total capacity of AmPot and Hooker in Mississippi up to 54,500 tons.

In 1960 Pennsalt shipped into the southeastern market 4,186 tons, or 27% of its total shipments of 15,195 tons. Of these shipments, 3,203 tons were sold by Olin as agent for Pennsalt under their sales contract of December 1957.[12] Olin had long-standing contacts with many buyers as a result of other chemicals sold to them and enjoyed a unique good will because of having made the Mathieson process available without charge. The arrangement between Pennsalt and Olin was only temporary, and Pennsalt was losing $80,000 a year on the sales which Olin was making. Pennsalt's shipments of 3,203 tons in fulfillment of sales generated by Olin were of a special nonrecurring kind. They cannot be considered as indicative of Pennsalt's effectiveness as an independent competitor in the southeast.

Apart from the 3,203 tons sold by Olin, Pennsalt shipped only 983 tons of sodium chlorate into the southeastern market.[13] The total shipments of sodium chlorate into the southeastern market in 1960 for all purposes was 47,035.76 tons. Of this, Hooker shipped 23,263.52 tons, or 49%, and AmPot shipped 19,586.24 tons, or 42%. Pennsalt's shipments of 3,203 tons under the sales agreement with Olin were 7%. The shipments which Pennsalt made in satisfaction of its own sales were 2%.

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[12] This is discussed in detail at p. 60 et seq. of this opinion.

[13] Of this amount, 363.5 tons went to Buckeye Cellulose Company, a subsidiary of Procter & Gamble. Since Buckeye owned its own freight cars which were used to transport the sodium chlorate from Portland to Florida, the railroad made an allowance to Buckeye covering the cost of returning the cars to the point of origin. This circumstance, which gave Buckeye a unique advantage in receiving shipments from the west coast, coupled with the fact that Procter & Gamble was an important customer for other products of Pennsalt, are the reasons why Pennsalt had the Buckeye account.

706-441—63——4

Furthermore, of the 983 tons shipped to the southeast by Pennsalt, independently of Olin, only 458.40 tons went to pulp and paper manufacturers.[14] This was 1% of the total tonnage of 39,562.83 which was shipped to the southeastern pulp and paper manufacturers in 1960. It compares with 18,127.71 tons, or 46%, shipped by Hooker, 17,556.72 tons, or 44%, shipped by AmPot, and 3,420 tons, or 9% sold by Olin for Pennsalt.

In 1960 shipments of 7,472.93 tons of sodium chlorate were made to buyers, other than pulp and paper mills, in the southeast. The sales agreement which Pennsalt had with Olin left Pennsalt free to compete for this business. It succeeded in obtaining 525 tons, or about 7%.

Both in theory and in fact Pennsalt was not an effective competitor in the southeast.

In furtherance of its national market claim, the Government points out that in 1960 AmPot shipped across country 8,808 tons of sodium chlorate from its Henderson, Nevada, plant, or 64% of its total shipments of 13,767.82 tons from that plant. Of these "across country" shipments, 7,237 tons, or 52.6%, of the shipments from Henderson went into the southeast. But at the time AmPot's Aberdeen plant, with a productive capacity of 15,000 tons, was unable to take care of the total tonnage of 19,586.24 tons which AmPot supplied to southeastern buyers. In contrast, AmPot's Henderson capacity of 27,000 tons far exceeded the 9,586.55 tons demanded by AmPot's customers in areas outside the southeast. This dual imbalance between supply and demand at AmPot's two plants was intracorporate and temporary. It was

[14] This is 94.9 tons more than the 363.5 tons that went to Buckeye, the Pennsalt reserved account. It represents shipments to two other southeastern pulp and paper mills.

rectified in December 1960 when AmPot increased its capacity at Aberdeen by 7,500 tons. It was AmPot's intention to satisfy the requirements of its customers in the southeast out of this increased capacity at Aberdeen and not from Henderson.[15] So that such shipments as AmPot made into the southeast from Henderson are not significant in determining whether a western shipper can effectively compete for business in the southeast.

So far as shipments from the southeast to the west are concerned, in 1960 AmPot made no shipment from its Aberdeen plant to buyers west of the Rockies.

Hooker's situation with respect to east-west shipments was different. Although in 1960 Hooker made no shipments to the west coast from its Niagara Falls plant, it shipped 2,708.35 tons from its Columbus plant to customers west of the Rockies. This was 14.9% of the 18,152.72 tons shipped into the area. It compares with 10,485 tons, or 57.8% shipped by Pennsalt from Portland and 4,959.37 tons, or 27.3% shipped by AmPot from Henderson. The 2,708.35 tons which Hooker shipped to buyers in the west represented 7% of the 37,559.91 tons which Hooker shipped from both Niagara Falls and Columbus.

At the time Hooker had excess productive capacity of magnitude. As against a total of 50,000 tons (Niagara Falls 18,000 tons, Columbus 32,000 tons) it shipped to all markets east of the Rockies only 34,851.6 tons, or 70% of its available capacity. Tonnage shipped from the Columbus plant to all markets east of the Rockies amounted to 26,478.23 tons leaving that plant with 5,521.77 tons at Columbus, or 20.9% of the

[15] It could hardly be expected to do otherwise since the freight disadvantage in shipping from Henderson to the southeast, as against shipping from Aberdeen, was $25 to $30 a ton, or something in excess of 15% of the bulk sales price of $163 in the southeastern market.

plant capacity, to be disposed of. It was out of this excess that the 2,708.35 tons were supplied to the west. Of this, 1,920.65 tons, or about two-thirds, went to a single buyer, U.S. Borax Co., for herbicidal use.

The total shipments of AmPot and Hooker from their eastern facilities were 52,964.88 tons; viz:

Hooker shipments—Columbus and Niagara Falls	37,559.91
AmPot shipments—Aberdeen	15,404.97
Total	52,964.88

Of this, the 2,708 tons which Hooker shipped to the west coast from its excess capacity at its Columbus plant, amounted to 5%. The east-west shipments by Hooker in 1960 were undoubtedly the result of a desire to keep its plants operating as close to capacity as possible when eastern buyers were not available.

Here, there is no indication that an imbalance between supply and demand, either nationally or locally, had been the industry norm over a period of years or that it will be in the future. This circumstance makes irrelevant *United States* v. *Bethlehem Steel Company, supra,* which held that in determining the relevance of a market, freight costs were only a marginal factor when an industry-wide imbalance between supply and demand had persisted through the years and reflected an industry pattern (pp. 598–599).

In sum, neither Pennsalt nor AmPot could compete effectively from their western plants for business in the southeast where the highest concentration of buyers was located. Nor could AmPot or Hooker, the two companies having eastern facilities, effectively compete for business on the west coast. In each case the competitive limitation was due to market remoteness. There was no national market for sodium chlorate in 1960 relevant to an ascertainment of the competitive impact of the joint venture.

THE EFFECT OF THE JOINT VENTURE ON COMPETITION IN SODIUM CHLORATE

On the competition issue, the initial position of the Government is novel and far reaching. It contends that Pennsalt and Olin *could* have competed with each other since each was as financially able and otherwise competent to compete on an individual basis as other sodium manufacturers which were doing so. In these circumstances, it is said that the antitrust laws required Pennsalt and Olin to compete individually or to stay out of business.[16] Their attempt to compete jointly, through the medium of Penn-Olin, because of a desire for greater profitability and risk limitation, is therefore said to be violative of Section 7.

The Government thus lays aside as immaterial any consideration of whether, but for Penn-Olin, Pennsalt and Olin *would* have entered the market as individual competitors, or what the competitive affect of Penn-Olin may be in the light of relevant economic factors. Instead, it would substitute a conclusive presumption that *any* combination specified in Section 7 between companies having the overall capability to go into business alone has a pernicious effect on competition

[16] The Post Trial Brief of the Government states (p. 1):

"This case involves a joint venture between two companies that could have competed."

The same brief states at p. 2:

"The fundamental issue posed by the trial of this case is whether the anti-trust laws condemn the entry of competitors into business together when, except for subjective preferences based on profitability and risk, each could have done so alone."

The Government's reply brief states (p. 30):

"When competitors and potential competitors have comparable resources and face similar hurdles, the anti-trust laws require that they meet these challenges on individual terms or not at all. They may compete or not as they please. But the option to compete or combine is forbidden."

and lacks any redeeming virtue; it would make *any* such combination illegal *per se*. No precedent supports the Government's position and its lack of logic condemns it. Compare *United States* v. *E. I. DuPont de Nemours & Co.*, 118 F. Supp. 41, 219–220 (D. Del. 1953), aff'd 351 U.S. 377 (1956) which held that under the Sherman Act it is not illegal *per se* for actual competitors to combine by means of a joint venture, but that a determination of the unreasonableness of the restraint is essential to its illegality.

The real issue is whether, based upon relevant economic factors, the formation of Penn-Olin has resulted, or as a reasonable probability will result, in a substantial lessening of competition or tend to create a monopoly in sodium chlorate in the southeastern part of the United States.

Prior to the joint venture, Olin had never produced sodium chlorate for sale in any market area or during any period of time. Nor had it ever sold sodium chlorate except for the limited time when it acted as sales agent for Pennsalt under the December 1957 contract. It had never purchased for its own use sodium chlorate from Pennsalt. On the other hand, Pennsalt had been manufacturing and selling sodium chlorate since 1941 from its plant at Portland, Oregon. Its shipments into the southeastern market were competitively not substantial.

The creation of Penn-Olin did not represent a combination of companies which were competing in the manufacture and sale of sodium chlorate in the southeastern market or elsewhere. Nor did it represent a combination of companies standing in the relationship of supplier and customer in the southeastern market or elsewhere.[17] It was neither a vertical combination

[17] Olin purchased sodium chlorate to use as a raw material in manufacturing sodium chlorite at its Niagara Falls plant. This sodium chlorate was purchased from Hooker's neighboring

or a horizontal combination.[18] Contrasted with these anticompetitive relationships which are frequently the subject of antitrust condemnation, the arrangement between Olin and Pennsalt was *sui generis*.

When Section 7 was amended in 1950 Congress was apprehensive of the rising tide of economic concentration as a dynamic force which it believed posed serious threats to the free enterprise system. One of the basic purposes of the 1950 amendment was to arrest in their incipiency combinations resulting in the concentration of power which would probably have the effect of jeopardizing to a substantial extent competition. *Brown Shoe Co.* v. *United States, supra,* pp. 315, 317.

The creation of Penn-Olin was not the typical case of one competitor menacing an industry by increasing its competitive power through the acquisition of another competitor. Penn-Olin was not the instrumentality through which two competitors sought to enlarge their economic power. Pennsalt and Olin were not competitors. Pennsalt was a company which had experience in the manufacture and sale of sodium chlorate in the far west. Olin was a company which had contacts of value with prospective customers in the southeast. Penn-Olin was the means by which the strength of the two companies was joined—not for the purpose of further pre-empting a market which they already occupied, but to break into a market to chal-

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Niagara Falls plant. Pennsalt from its Portland plant could not have competed successfully with Hooker for Olin's business.

[18] When the arrangement is between companies standing in a supplier-customer relationship it is characterized as vertical; when between companies performing similar functions in the production or sale of comparable goods or services, it is said to be horizontal. *Brown Shoe Co.* v. *United States, supra,* pp. 323, 334.

lenge the supremacy of two companies which were dominating it.

Those companies were Hooker and AmPot. In 1960 Hooker supplied 49.5% and AmPot furnished 41.6% of the requirements of buyers in the southeast. Pennsalt's share, independent of the quantity sold by Olin as its sales agent, was 2.1%, and including Olin's sales, was 8.9%.

As for productive capacity, Pennsalt nationally was the smallest of the three companies. In 1960, Hooker had 50,000 tons, or 46.5%, AmPot 42,000 tons, or 39.1%, and Pennsalt 15,434 tons, or 14.4%. In the southeastern market, Hooker's plant at Columbus, Mississippi, had a capacity of 32,000 tons, or 68%, of the total capacity in that market, and AmPot's 15,000-ton plant at Aberdeen possessed the remainding 32%. Pennsalt had no plant in the southeast.

When Penn-Olin goes on stream it can reasonably be expected to have an immediate effect on competitive conditions which theretofore existed. Thereafter, it is not to be supposed that Pennsalt will continue to make shipments to the southeast. What it otherwise might have supplied from Portland will be shipped by Penn-Olin from Calvert City. As an independent competitor in the southeast, Pennsalt will probably be finished. But the elimination of Pennsalt does not mean that competition will be substantially lessened within the intendment of Congress. Whether a combination described in Section 7 will have the anti-competitive effect forbidden by the Act, cannot be ascertained merely by looking at its effect upon the competitive activities of the combining companies. The critical determination is whether the combination substantially lessens competition *generally* in an economically significant market. *Brown Shoe Co.* v.

United States, supra, p. 335. Pennsalt occupied only a relatively insignificant competitive position in the southeast. As will be later shown, the competitive benefits which derive from Penn-Olin entering the market far exceed any competitive loss resulting from Pennsalt's probable elimination.

The Government asserts that another immediate effect of the joint venture will be to make Olin a captive buyer of sodium chlorate from Penn-Olin and to deprive other suppliers of obtaining any of Olin's business. For some years Olin has been buying sodium chlorate at its Niagara Falls plant to use in the manufacture of sodium chlorate. Its requirements have been supplied by Hooker from its Niagara Falls plan.[19] While Olin's 50% ownership of Penn-Olin does not legally deprive Olin of the right to continue to buy from Hooker or anyone else, self-interest might lead Olin to buy from Penn-Olin. But it cannot be said that as a matter of reasonable probability Olin will do so. Whether purchasing from Penn-Olin will be to Olin's *net* advantage depends upon a balancing of the advantage which will accrue to Olin as a stockholder of Penn-Olin as against freight and service disadvantages inherent in shipments from Calvert City instead of a "next door" supplier. The record gives no indication how Olin will evaluate these conflicting considerations. In any event, however disadvantaged

[19] Hooker's shipments to Olin have been as follows:

Year	Tons
1957	1,300
1958	1,100
1959	1,300
1960	1,350
1961 (6 mos.)	560

Larger quantities of sodium chlorate sold in the United States, but produced outside of the United States, from 1958 to 1960, have been stipulated not to be substantial.

other suppliers may be in seeking Olin's business, it will not diminish competition for business in the southeast.

The primary attack of the Government is not directed to the alleged adverse affect of the joint venture on existing competition, but against its affect upon various aspects of potential competition.

The Government argues that the financial resources of defendants, as compared with those of Hooker and AmPot, are so great as to give Penn-Olin competitive advantages that will ultimately lead to market domination by it. This contention is based largely upon the proposition that the defendants, because of their size, will be able to use their combined buying power as a basis for making reciprocal arrangements with vendors who are sodium chlorate buyers, which will give Penn-Olin an undue sales advantage over its competitors.

Pennsalt is an acknowledged practitioner of reciprocity and uses purchasing-marketing coordination to further its sales efforts. Whether this is also the policy of Olin is more questionable. The record does not disclose whether Hooker and AmPot have or will endeavor to capitalize on their buying power to further their sales position. But in any event, whatever advantage Penn-Olin might be able to obtain through reciprocal arrangements because of the combined size of the defendants scarcely warrants the conclusion that as a matter of reasonable probability Penn-Olin will ultimately dominate the sodium chlorate market.

AmPot and Hooker are both multi-million dollar companies with established positions in the southeastern market. Neither is apt to be at a competitive disadvantage simply because of defendants' size. Thus far, neither has shown any disposition to lessen its competitive efforts because of confrontation by

Penn-Olin. On the contrary, both have attempted to make themselves more formidable as business rivals. Prior to Penn-Olin, the capacity of the Hooker plant at Columbus was 29,150 tons. Since Penn-Olin, the capacity has been increased to 32,000 tons. After Penn-Olin's plan to build a plant at Calvert City became known, Hooker employed a new salesman who was a specialist in pulp and paper sales, and installed a pulp and paper research laboratory for its customers. It offered its customers five-year contracts guaranteeing them a firm price during the contract period. It also proposed to increase its selling efforts generally. These actions were due in part at least to the increased competition expected from Penn-Olin.

Similarly with AmPot. After AmPot learned of the joint venture it proceeded to expand the capacity of its Aberdeen plant from 12,000 to 22,500 tons, and began to offer five-year contracts to its customers guaranteeing them a fixed price for five years.

The determination in 1961 of PPG to enter the southeastern market makes the likelihood of market domination by Penn-Olin even more remote. PPG plans to construct a sodium chlorate plant at Lake Charles, Louisiana, with an intended ultimate capacity of 15,000 tons. It is a company which in 1960 had assets of $625,000,000 and sales of $628,000,000. From the standpoint of size it is capable of competing effectively with Penn-Olin or anyone else. The Government's forecast that Penn-Olin will uproot Hooker and AmPot from their entrenched positions and ultimately become the dominant factor in the southeast is based on conjecture and nothing more.

The Government further asserts that the size of the Calvert City plant will probably deter other companies from entering the southeastern market, when otherwise they might have done so. The Government

points out that Penn-Olin's 26,500-ton plant was the largest ever built at one time in the United States, and that previously almost all plants at the outset went in the 2,000–15,000 range. By the time Penn-Olin was ready to build, the demand for sodium chlorate in the southeast had increased dramatically. The size of its plant was not out of line with competitors' plants then in existence or imminently in prospect. The *in terrorem* significance which the Government attributes to the disparity between the size of Penn-Olin's plant and those initially constructed by others under conditions which then prevailed, is not warranted.

Such evidence as there is should allay any fear that Penn-Olin, either because of the size of its plant or the combined resources of the defendants, will have any exclusionary effect upon potential entrants having antitrust relevance. When PPG announced its decision to build at Lake Charles, Louisiana, it knew of Penn-Olin's intention to build at Calvert City. Prospective competition from Penn-Olin did not cause PPG to alter its plans. It is true that PPG made its decision after the present suit was begun. It cannot be supposed, however, that PPG's decision was made upon the basis of so hazardous a judgment that Penn-Olin would be eliminated or rendered substantially less effective competitively by a judgment in the Government's favor. It is more reasonable to conclude that PPG acted because an appraisal of market conditions convinced it that regardless of the outcome of the present litigation, additional sodium chlorate capacity was needed in the southeast and that after its plant was built, it would be able to obtain a fair share of the market for itself.

The Government points out that "rumor" indicated that the idea of building in the southeast occurred

to the Solvay Division of Allied Chemical Corporation, Wyandotte Chemicals, and Virginia Smelting Company, but that none had done so. Penn-Olin is said to be the reason. This rumor was never substantiated. Each of the rumored potential competitors was interviewed by agents of the F.B.I. at the direction and under the supervision of counsel for the Government. Yet the Government called no witness from any of the companies. Its failure to do so at least suggests that it could find no one to corroborate its claim.

It is true that prior to the joint venture Pennsalt was of the opinion that the southeastern market could handle only one more significant producer; and both Pennsalt and Olin believed that by a prompt announcement on February 15, 1960, of the formation of Penn-Olin and its plans, the market might be preempted from other potential competitors.[20] But this evidence will not support the conclusion that one or more other companies were probably deterred by Penn-Olin from going into business in the southeast, since there is no proof that any newcomer other than PPG was considering doing so and PPG decided to enter the market after Penn-Olin had been announced. The absence of entry by others, in itself, is not too meaningful, since even before the formation of Penn-Olin was announced there have been no newcomers in the sodium chlorate industry for a decade. Furthermore, whether the unidentified companies which the Government asserts were probably excluded from the market would have been as effective business rivals as Penn-Olin is to be doubted. The combined experience

[20] Evidence of the intention of parties to a combination is an aid in predicting their probable future conduct and the probable effect of the combination. See *Brown Shoe Co.* v. *United States*, *supra*, p. 329, n. 48.

of Pennsalt and Olin in sodium chlorate far exceeded that of any other potential market entrant. AmPot and Hooker had a virtual monopoly in the southeast and a formidable opponent was required if substantial inroads upon their entrenched positions were to be made.

It cannot be held that as of the date of trial Penn-Olin probably deterred others from entering the field. What Penn-Olin's effect in the future may be upon would-be entrants can only be a matter of conjecture. Obviously, the number and strength of companies already in a market will have a bearing upon another's decision to enter it. But it is only one of a myriad of other factors which will control the decision. The imponderables are too great to hazard a forecast as to Penn-Olin's future deterrent affect, even on the basis of probabilities, which will have validity.

The Government makes the further argument that if Olin and Pennsalt had not determined to become partners via Penn-Olin, the probabilities are that both would have built a sodium chlorate plant somewhere in the southeast. Penn-Olin, the argument runs, thus prevented Pennsalt, an "actual" competitor, and Olin, a "potential" competitor, from independently competing in the southeast.[21]

The interest which Pennsalt had in building a sodium chlorate plant in the southeast was of long

[21] An additional argument is that the practical effect of Penn-Olin was to bring about an allocation of markets between Olin and Pennsalt. Thus, it is said that the joint interest of the companies in Penn-Olin will necessarily prevent Pennsalt from competing from its Portland plant for business in the southeast, and has foreclosed Olin from competing for west coast business from the plant which, but for Penn-Olin, it would have built in the southeast. This argument assumes a national market of competitive effectiveness. The absence of such a market invalidates the argument.

standing. Its 20-year operating experience at Portland had provided it with all requisite manufacturing know-how, and it was aware of the rapidly expanding market in the southeast. As early as 1951 it had cost studies made for a plant at Calvert City, Kentucky. From 1955 on the company gave almost continuous consideration to the establishment of a plant in the southeast. The record contains frequent expressions of optimism by Pennsalt personnel concerning the desirability of southeastern expansion. Yet no decision to proceed was ever arrived at. This was due primarily to the inability of the management to satisfy itself that the plant would be sufficiently profitable to meet the rate of return standard which it had established as a condition for new investments.

Olin's interest in manufacturing and selling sodium chlorate in the southeast for its own account likewise antedated the joint venture by a number of years. It realized that sodium chlorate would soon replace sodium chlorite as a raw material in the Mathieson process, and that the demand for sodium chlorate by pulp and paper mills in the southeast was rapidly expanding. It had extended experience in the technical aspects of bleaching pulp and paper. It possessed valuable contacts with the pulp and paper mills as a result of selling other chemicals to them, and having made available, without charge, the Mathieson process. This combination of circumstances led Olin to actively consider the possibility of building a plant of its own in the southeast. To that end, it had studies made of plant location, power availability, sales potential, manufacturing techniques, construction costs, profitability, and other relevant factors. But Olin, like Pennsalt, never decided to go forward independently with the project. The primary difficulty encountered every time the project was analyzed

seemed to be the generally unsatisfactory rate of return.

Paralleling in point of time the studies which Pennsalt and Olin were making concerning the feasibility of building their own plants where several years of sporadic discussions between them relating to the possibility of entering the southeastern market by means of a joint arrangement of some kind. The joint venture agreement was the culmination of these discussions. The possibility of individual entry into the southeastern market had not been completely rejected by either Pennsalt or Olin before they decided upon the joint venture.[22]

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[22] Osborne, the President of Penn-Olin, testified that Olin's decision to enter the joint venture was made without determining that Olin could not or would not be an independent competitor. He testified that that question "never reached the point of final decision."

Pennsalt asserts that on December 5, 1957, its management made its final decision that it should not build a plant of its own and that this decision was never reconsidered or changed. The view that the December 5, 1957, decision was final is rejected. The record is replete with evidence that after December 5, 1957, Pennsalt continued to manifest an interest in an independent sodium chlorate venture, although this was primarily in the posture of a combined sodium chlorate-ammonium perchlorate plant. The consideration which was given to the ammonium perchlorate aspect of the venture was basically to support the manufacture of sodium chlorate. Ammonium perchlorate was viewed as a "sweetener" to justify the investment economically, since ammonium perchlorate, as compared with sodium chlorate, yielded a relatively high rate of return on investment.

In December 1958 the management of Pennsalt agreed to launch a full-scale effort to determine the feasibility of a sodium chlorate-ammonium perchlorate plant. This effort was not made because in January 1959 Pennsalt resumed joint venture discussions with Olin. The January 1959 minutes of the Appropriation Committee of Pennsalt indicate that if Olin was not desirous of proceeding with the joint venture, data on

At the time when the joint venture was agreed upon Pennsalt and Olin each had an extensive background in sodium chlorate. Pennsalt had years of experience in manufacturing and selling it. Although Olin had never been a commercial manufacturer, it possessed a substantially developed manufacturing technique of its own, and also had available to it a process developed by Vickers-Krebs with whom it had been negotiating to construct a plant. Olin had contacts among the southeastern pulp and paper mills which Pennsalt lacked, but Pennsalt's own estimates indicate that in a reasonable time it would develop adequate business to support a plant if it decided to build. A suitable location for a plant was available to each company—Calvert City, Kentucky, for Pennsalt, and the TVA area around Chattanooga, Tennessee, for Olin. The financing required would not have been a problem for either company. In short, when the joint venture agreement was signed, Pennsalt and Olin each possessed the resources and general capability needed to build its own plant in the southeast and to compete with Hooker and AmPot in that market. Each could have done so if if had wished. While neither company was able to satisfy itself with the rate of return potential of an individually owned plant, the forecasts of each company indicated that a plant could be operated with profit.[23] From the

doing the project alone should be resubmitted to the committee. As late as December 30, 1959, Land, General Manager, Industrial Chemicals Division East, was still of the view that no final decision had been made whether Pennsalt would build its own plant.

[23] For instance, the so-called Whither Report of the Chemical Division of Olin dated April 10, 1959, disclosed that if Olin built a 15,000-ton sodium chlorate plant at Mackintosh, Alabama, it could be expected to show a profit after taxes equal to 11% on the gross investment of $4,100,000. A revision of the

standpoint of profitability, however, Pennsalt and Olin both believed that they could make more money on their investment and that the risks would be less if their business were carried on through a jointly owned plant rather than by means of plants individually owned.

The fact that Olin and Pennsalt each had the capability of building a plant and competing individually is of no controlling significance. It is important only as a factor in determining whether as a matter of probability *both* companies would have entered the market as individual competitors if Penn-Olin had not been formed.[24] Only in this event would potential competition between the two companies have been foreclosed by the joint venture. Whether or not as a matter of probability Pennsalt or Olin would have constructed a plant of its own in the absence of Penn-Olin, need not be decided, for the reasons hereinafter stated.

No evidence exists which will support a finding that if Penn-Olin had not been created Pennsalt and

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Report in October 1959 revealed that if Olin constructed a combined sodium chlorate-chlorine-caustic plant at Chattanooga, Tennessee, the investment of $3,590,000 attributed to the 15,000-ton sodium chlorate facility would yield an after-tax profit of 13.1%.

A study made by Pennsalt in 1959 for a combined sodium chlorate-ammonium perchlorate plant at Calvert City, Kentucky showed that the $6,961,300 investment cost assigned to the 25,000-ton sodium chlorate phase would yield a 15.9% after-tax return.

Although both companies made a number of studies of the potential profit to be derived from a sodium chlorate plant and the anticipated yield on investment was not uniform, each of the studies forecast a profit.

[24] Section 7 is not concerned with possibilities of competition being substantially lessened; its aim is directed against combinations that probably will have that result. *Brown Shoe Co. v. United States*, *supra*, p. 323.

Olin would have *simultaneously* determined to build their own plants. Not only the inherent improbability of this occurring, but the protracted study which each company gave to the problem without arriving at an affirmative decision, negates such a likelihood. So that the best possible postulate on which the Government's case can be based is that one company would have decided to build while the other continued to ponder.

The decision by one company to build, however, might have had a bearing upon the decision of the other. The considerations which might induce one company to build its own plant when Hooker and AmPot were the only competitiors would not necessarily be the same if a third competitor were about to enter the market. Pennsalt and Olin were each hesitant to build a plant of its own in a market occupied by two competitors. Whether the imminent presence of a third competitor might have made the prospect more or less appealing cannot be foretold. Neither company had ever faced the problem. The record affords no clue as to what action might have been taken if the problem had arisen. It is therefore impossible to conclude that as a matter of reasonable probability *both* Pennsalt and Olin would have built plants in the southeast if Penn-Olin had not been created.

The most favorable assumption that can be made from the Government's standpoint is that either Pennsalt or Olin—but not both—would have entered the southeastern market as an independent competitor if the two companies had not agreed to consolidate their efforts through Penn-Olin. Upon this assumption the effect of Penn-Olin was to eliminate Pennsalt or Olin, as the case may be, as a competitor. But even this hypothesized situation affords no basis for

concluding that Penn-Olin had the effect of substantially lessening competition. Whether or not it did depends upon the competitive impact which Penn-Olin will have as against that which might have resulted if Pennsalt or Olin had been an individual market entrant.

The Government argues that any such comparison is irrelevant and that a determination that Olin (or Pennsalt) would have built its own plant but for Penn-Olin automatically condemns the joint venture.[25] Such an interpretation would cut the heart out of Section 7. The Section denounces a substantial "lessening" of competition. "Lessening" is a word of comparison. It demands that the competitive situa-

[25] The Transcript of Argument reads at pp. 125–126:

"The COURT: Let me ask you: If I should come to the conclusion that as a matter of reasonable probability, absent the joint venture, Olin would have constructed a factory and sold its products in the southeast, if I should come to that conclusion, does the Government contend that from that the Government must * * * win?"

"Mr. FREED: Yes.

"The COURT: Let me ask you: Isn't there a further question as to whether or not the construction of a plant by Olin, sales of products by Olin in the southeast, would have produced a more competitive situation than did the joint venture?

"Mr. FREED: No, Your Honor, that would not be a legitimate question. It is not for the Government and it is not for the courts to weigh the advantages of combinations of competitors and what they give to the economy, and what individual companies give to the economy. * * *"

In arguing that competition created by the joint venture is irrelevant, the Government cites *U.S.* v. *Minnesota Mining & Manufacturing Co.*, 92 F. Supp. 947 (D. Mass. 1950) as an "important precedent." If the decision is susceptible of the interpretation which the Government gives it, it is inconsistent with the views herein expressed. *United States* v. *Bethlehem Steel Corp.*, *supra*, pp. 615–618, the other case relied upon by the Government, is clearly inapposite.

tion which the challenged transaction has brought about be compared with that which otherwise would have existed. Under the Sherman Act competitive conditions before and after a trade restraint must be examined to determine it reasonableness. *Board of Trade of the City of Chicago* v. *United States*, 246 U.S. 231, 238 (1918). A similar comparison is no less essential in determining whether a transaction otherwise within the reach of the Clayton Act will affect competition adversely. If Penn-Olin had the effect of keeping Pennsalt or Olin out of the southeastern market, it runs afoul of Section 7 only if competition generally in the southeast will probably be substantially less under the joint entry by Pennsalt and Olin *via* Penn-Olin than it would have been if there had been individual entry by either Olin or Pennsalt.

In the classical horizontal combination case an appraisal of the competitive potential of each of the combining competitors can be made upon the basis of its prior record. Here there are no past records of Pennsalt or Olin that can be drawn upon to show their individual competitive effectiveness in the southeast, except those which pertain to the 1957–60 period when Olin was acting temporarily as Pennsalt's sales agent. They establish a market penetration by Pennsalt and Olin which was insignificant compared with that of Hooker and AmPot. What the competitive impact of Pennsalt or Olin might have been if either had owned its own plant in the southeast cannot be determined from the record. Nor does the record disclose the competitive effectiveness, in terms of percent of business obtained or otherwise, which Penn-Olin has made since it began business.

Solely as a matter of theory, however, no reason exists to suppose that Penn-Olin will be a less effective competitor than Pennsalt or Olin would have

been. The contrary conclusion is the more reasonable. Penn-Olin should be able to bring to the southeast the aggregate contributions of both companies. After all, Penn-Olin is owned and managed by both Olin and Pennsalt. Whatever manufacturing or marketing techniques, new product usages or other advantageous operational procedures are known to Olin or Pennsalt can be expected to be brought to the attention of Penn-Olin and utilized by it. Neither Pennsalt or Olin has any reason to suppress information which will be of advantage to Penn-Olin. All three companies are in business to make money, and competitive effectiveness is essential to the achievement of this objective.

Before trial, the Government interviewed and corresponded with a number of chemical companies and sodium chlorate producers. In spite of this, no witness was called to testify that the vigor of competition in the sale of sodium chlorate had been, or is likely to be, lessened by Penn-Olin. Nor did the plaintiff introduce any testimony from purchasers of sodium chlorate who complained of any lessening of competition in the industry. Dirkson, Eastern General Sales Manager of AmPot, who called by the Government, testified that there had been no lessening in competition since the establishment of Penn-Olin and that he knew of no facts likely to lead to a lessening in the future.

It is not every lessening of competition which is forbidden by Section 7. The lessening of competition becomes a matter of legislative concern only if it is reduced to a substantial degree, that is to say to such an extent as will injuriously affect the public. *International Shoe Co.* v. *F.T.C.*, 280 U.S. 291, 298 (1930).

Prior to Penn-Olin building its plant at Calvert City, Kentucky, Hooker and AmPot had virtually a

monopoly in the southeast. With Penn-Olin will be three competitors; and when the PPG plant at Lake Charles goes on stream, there will be four. Each of the newcomers is a sizeable company and should be able to give a good account of itself. Actual and in-prospect production in the southeast will have more than doubled since the joint venture was entered into, as shown by the following tabulation:

Company and plant location	Capacity in tons	
	1959	Projected 1962
Hooker—Columbus, Miss.	29,150	32,000
AmPot—Aberdeen, Miss.	12,000	22,500
Penn-Olin—Calvert City, Ky.		26,500
PPG—Lake Charles, La.		[1] 15,000
Total	41,150	96,000

[1] To be achieved gradually on a stepped-up basis.

The advent of Penn-Olin, and later PPG in the southeastern market, together with the increased production in that market, will in all likelihood increase the competition which theretofore existed and bring to buyers of sodium chlorate and to the public the benefits which normally result therefrom.

Congress, in amending Section 7 of the Clayton Act, recognized that all combinations were not anti-competitive, and that in some instances combinations may have the effect of stimulating competition. *Brown Shoe Co.* v. *United States, supra,* p. 319. The probabilities are that Penn-Olin will have that effect.

The Government makes an additional argument founded upon two agreements between Olin and Pennsalt which antedated the joint venture. One, the sales agreement, was made in December 1957; the other, the so-called production agreement, was made in February 1958. It is asserted that the joint venture

consummated and perpetuated the restraints in sodium chlorate imposed by the two earlier agreements which were in themselves illegal. For this reason, the argument goes, even if Penn-Olin might have been lawful as a spontaneous creation, its heritage of restraints under the earlier agreements requires its dissolution. *United States* v. *Yellow Cab Co.*, 332 U.S. 218, 227 (1947) is cited in support of this proposition.

As subsequently shown the sales agreement and production agreement were not in and of themselves in derogation of the Sherman Act. Nor, as has been previously shown, was the joint venture, considered independently of the prior agreements, in violation of Section 7 of the Clayton Act. The fact that the three transactions—the joint venture and the two agreements—each legal when considered independently, occurred sequentially and as a part of the totality of events, cannot make them, in combination, illegal. *United States* v. *Yellow Cab Co., supra,* is not at variance with this view.

It is the burden of the Government to establish that the joint venture probably will have the effect of substantially lessening competition or that it will tend to create a monopoly in sodium chlorate in the southeastern market. This burden has not been met. The joint venture agreement, in its sodium chlorate aspect, violated neither Section 1 of the Sherman Act or Section 7 of the Clayton Act.

THE AFFECT OF THE JOINT VENTURE ON COMPETITION IN CALCIUM HYPOCHLORITE

As stated, Pennsalt and Olin are substantial competitors, on a nationwide scale, in calcium hypochlorite, one of the nonchlorate chemicals. Together they had 88.8% of the market in 1959 and 76.6% in 1960. The only other competitor of importance is PPG.

The joint venture letter agreement of February 11, 1960 provides that Penn-Olin will manufacture and market not only sodium chlorate but potassium chlorate and perchlorates as well. This agreement was superseded by the definitive contract of October 17, 1961, which limited the operation of the joint venture to sodium chlorate.[26] The Calvert City plant was constructed to produce sodium chlorate only. So that under its present contract and with its existing physical facilities, Penn-Olin cannot manufacture and sell calcium hypochlorite. It is not important that the breadth of the language of Penn-Olin's charter, frequently found in Delaware charters, authorizes it to do so. The Government concedes that it knows of no plans of the defendants to expand the Calvert City plant or to produce any product other than sodium chlorate.[27]

The Government asserts that in the operation of Penn-Olin high officials of Pennsalt and Olin who make the price and marketing and other pertinent decisions for their own companies will be interlocked with each other as officers and directors of Penn-Olin, and that the information concerning the chemical business which each brings to Penn-Olin's meetings will relate not only to their joint product, sodium chlorate, but also to nonchlorates, including calcium hypochlorite, in which they compete. Discussions which will ensue between the Pennsalt and Olin representatives in their common effort to make the sodium chlorate business a success, the Government argues, will inevitably lead to discussions of all phases of the nonchlorate business in which they are in competition, since chlorate and nonchlorate price policies, market-

[26] Although this was after suit had been begun on January 6, 1961, Olin had determined internally in 1960 that the joint venture should be restricted to sodium chlorate.

[27] Transcript of Argument, p. 44.

ing areas, distribution systems and customers coincide or overlap. The Government asserts that in these circumstances it would "defy human nature" for the sodium chlorate partners to maintain an unfaltering zeal to compete in nonchlorates.

No evidence exists of collusion of any type, either actual or threatened, between defendants in the conduct of their nonchlorate operations. A finding of illegality in this area, if it is to be made, must rest upon an inference that a substantially lessening of competition between Pennsalt and Olin in nonchlorates will probably result because of the opportunity which their representatives have to make anticompetitive agreements when they meet in connection with Penn-Olin's affairs. Such an inference is incompatible with the holding in *Maple Flooring Asso.* v. *United States,* 268 U.S. 563 (1925). There it was argued that a trade association consisting of hardwood flooring manufacturers in actual competition with each other which held meetings for the purpose of discussing and exchanging information about costs, commissions, freight rates, sales prices, and other pertinent marketing data, would have the "*necessary* tendency" to unduly restrain competition in violation of Section 1 of the Sherman Act (p. 578). The Court held, however, that in the absence of proof that anticompetitive agreements or concerted action had been reached or attempted, there was no basis for inferring that the association meetings would result in a violation of the law (p. 586).

The probability of competition being substantially lessened by conduct specified in the antitrust statutes need not be established by direct evidence. Inferences that competitive restrictions will probably result are judicially acceptable if supported by adequate evidence. Here the proof shows only an opportunity for

illegal activities. That is not enough. To equate opportunity for wrongdoing with likelihood of its occurrence reflects a cynicism toward business behavior which is without warrant. Presumption of probable wrongdoing cannot be a substitute for its proof.

There is no basis for finding that the joint venture and the activities of the parties thereunder probably will substantially lessen competition or tend to create a monopoly in calcium hypochlorite in violation of Section 1 of the Sherman Act or Section 7 of the Clayton Act.

The Asserted Illegality of Sales and Production Agreements

The Government challenges two agreements entered into by Olin and Pennsalt in December 1957 and February 1958, referred to, respectively, as the "sales" agreement and the "production" agreement. The Government contends that these agreements, in and of themselves and without reference to the joint venture, unreasonably restrained trade in violation of Section 1 of the Sherman Act.[28]

The relevant line of commerce is sodium chlorate. Although the evidence does not permit a statistical market analysis for 1957 and 1958 comparable to that previously made for 1960, there is no reason to believe that the situation was substantially different in the three years. Hence the southeast will be deemed to be the only relevant market in which to determine the competitive effect of the 1957 and 1958 agreements.

THE SALES AGREEMENT

The sales agreement had this background: In October 1957 the productive capacity of Pennsalt at its

[28] Transcript Argument, p. 54.

Portland plant was expanded from 7,848 to 12,392 tons. This enabled it to produce some tonnage which it could not sell on the west coast. At the time Pennsalt was desirous of exploring with Olin the possibility of a sodium chlorate joint venture in the southeast. Distribution by Olin of Pennsalt's production would permit the southeastern market to be jointly tested and enable Pennsalt to work off some of its surplus. Pennsalt thought that such a temporary arrangement might serve to stimulate Olin's interest in a joint venture. This combination of circumstances caused Pennsalt to initiate discussions with Olin which in December 1957 culminated in the agreement.

The agreement provided in substance that Pennsalt would make available to Olin's southern sales organization 2,000 tons of bulk sodium chlorate per year to be sold at prices established by local competition. Olin agreed to sell this sodium chlorate in bulk only to pulp and paper mills in the southeast. Pennsalt agreed to provide technical service upon Olin's request. Pennsalt reserved the right to serve directly only one southeastern pulp mill, Buckeye Cellulose Company at Foley, Florida. The agreement was on a year-to-year basis, but the parties expected it would last for two or three years. The sales agreement was adhered to from the time when it was made until the joint venture agreement was signed.

The effect of the sales agreement was to preclude Olin from selling sodium chlorate manufactured by Pennsalt to anyone anywhere except pulp and paper mills in the southeast. Concurrently, it precluded Pennsalt from selling directly to the pulp and paper companies in the southeast, except Buckeye. This "territorial division" and "customer allocation," the Government asserts, foreclosed competition between

Pennsalt and Olin in substantial geographical areas and consumer uses.

While the Government does not say so in so many words, it apparently takes the position that the territorial and customer restrictions imposed by the agreement constitute *per se* violations of the Sherman Act. It has recently been held, however, that a vertical arrangement by a manufacturer and a dealer-distributor restricting the right of the latter to sell only in specified territories and to designated customers cannot be deemed, as yet, to be a *per se* violation. *White Motor Company* v. *United States*, No. 54 October Term, 1962, 31 U.S.L.W. 4231 (Mar. 4, 1963). This principle, now definitively settled, would appear to have even greater application in the instant case where the arrangement was between a manufacturer and its sales agent.

The Government argues that the sales agreement was not comparable to an arrangement between a manufacturer and distributor, such as was considered in *White Motors*. Rather, says the Government, the Pennsalt-Olin agreement was one between potential competitors since Pennsalt was an actual competitor in sodium chlorate and Olin was considering going into the same business.[29]

The principle that a horizontal market division between competitors is a *per se* violation of the Sherman Act rests upon the premise that all such agreements impose naked restraints on trade and have no purpose except to stifle competition. Because of their pernicious effect on competition and lack of any redeeming virtue, they are conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or

[29] Transcript of Argument, pp. 55–57.

the business excuse for their use. *White Motor Company* v. *United States, supra.*

Thus far this principle appears to have been limited to agreements between parties which are actual competitors. The Government admits that it knows of no instance where it has been brought to bear upon potential competitors.[30] Whether it can be applied in the instant case requires consideration *in limine* of the extent to which Olin and Pennsalt were potentially competitive.

The concept of potential competition is, to say the least, a flexible one, and is subject to almost unlimited gradations in meaning. The degree of likelihood of competition may cover a broad range. In point of time its prospect may be remote or imminent. Involved may be companies which are financially weak or strong or both. The problem may concern companies with experience in manufacturing and selling the same product in other relevant markets or companies which are newcomers to the industry. The potential market may be one occupied by other competitors, or one ripe for exploitation because of the absence of competition. A whole gamut of other environmental factors may be envisioned which will bear upon the significance of the so-called potential to compete. Only if the "potential competition" is analyzed and defined in the light of the evidence can the concept be meaningful in the solution of an antitrust problem. To simply describe companies as potential competitors is not enough.

Here, although Pennsalt had a plant in Portland since 1941, it had never been able to develop any business of significance in the southeast. In its agreement with Olin it reserved the right to sell to only one customer, Buckeye. Pennsalt was able to retain

[30] Transcript of Argument, p. 57.

the business of Buckeye only because of a unique circumstance which gave to Buckeye a particular freight advantage in receiving shipments from the west coast. The insignificance of Pennsalt as a competitive shipper from Portland to the southeast in 1960 has been discussed earlier in this opinion. The record is devoid of evidence to permit comparable analysis for 1957; but it does show that in 1957 Pennsalt shipped into the southeastern market only 597 tons. There is no reason to suppose that in 1957 Pennsalt was a more vital competitive factor in the southeast than it was in 1960.

So far as Olin is concerned, at the time when it entered into the agreement, it had never manufactured sodium chlorate for sale or sold it anywhere. Although it was studying the desirability of going into the business no decision to do so had been made.

In short, when the sales agreement was made, both Pennsalt and Olin were far removed from the point of becoming actual competitors in the southeastern market, or anywhere else. To say that they were potential competitors stretches the concept to the point where, in an antitrust context, it is virtually meaningless. Their relationship provides no basis for applying the *per se* violation rule applicable to actual competitors who agree to divide territories and customers between themselves.

So that whether the sales agreement is scrutinized simply as a contract between a manufacturer and his sales agent, analogous to the manufacturer-distributor-dealer relationship dealt with in *White Motors,* or is examined with emphasis upon the status of the parties as potential competitors, the "rule of reason" read into the Sherman Act by *Standard Oil Co.* v. *United States,* 221 U.S. 1, 59–62 (1911) must be applied, and the evidence examined to ascertain whether the re-

straint of trade which the sales agreement is said to have imposed, was unreasonable.

The sales agreement did not impose the severe territorial or customer limitations which the Government claims. It did not preclude Olin from manufacturing sodium chlorate or from purchasing it from Pennsalt's competitors; and if Olin did either it was free to sell the product to anybody outside of the southeast, and to anybody in the southeast other than pulp or paper mills.

The agreement did not prevent Pennsalt from selling sodium chlorate to anyone in the United States, except pulp and paper mills in the southeast. All that it did was to prevent Pennsalt from selling through its own personnel sodium chlorate to pulp and paper mills in the southeast. Even as to the latter business Pennsalt competed through the instrumentality of Olin, much as AmPot did through the Solvay Division of Allied Chemical.

The business which Olin was able to generate was not large. The sales which it made under the agreement in 1958 amounted to 1,113 tons, and in 1959 to 1,329 tons. In 1960, after Pennsalt and Olin had agreed to form Penn-Olin, 3,203 tons were sold. Olin enjoyed contacts and good will with the buyers which Pennsalt lacked. The probabilities are that Pennsalt was able to compete more effectively through Olin than it could have without Olin's assistance. In 1960, the year of its largest southeastern shipments, and with Olin's help, Pennsalt was only able to supply 9% of the total 47,035.76 tons shipped into the market. Of the remaining amount, Hooker and AmPot together supplied 91%. Even if the sales agreement be regarded as eliminating Pennsalt from competing for the business of the southeastern pulp and paper manufacturers, the exclusionary effect of the agreement was not substantial.

So far as a Sherman Act violation is concerned, the result must turn on the significance of the business practices in the terms of restraint of trade. *United States* v. *Masonite Corporation*, 316 U.S. 265, 280 (1942). The sales agreement imposed no unreasonable restraint of trade upon sodium chlorate in the southeast, and did not violate Section 1 of the Sherman Act.

THE PRODUCTION AGREEMENT

The second pre-joint venture agreement which the Government attacks is the so-called "production agreement" entered into on February 3, 1958. This is reflected in the memorandum written the following day by Mr. Logan, Vice President of Olin. There he details a visit which he had the preceding day with top officials of Pennsalt. The memorandum states:

> "Drake (Pennsalt's president) outlined their long-range interest in chlorate in the south and suggested that there was sufficient that both Pennsalt and OM had to contribute to seriously consider joint activity.
>
> * * * * *
>
> "It is felt that neither OM nor Pennsalt should move in the chlorate or perchlorate field without keeping the other party informed and I agreed to do so.
>
> * * * * *
>
> "Either party is to bring to the attention of the other any unusual aspects of this business which might make it desirable to proceed further with production plans."

There is no justification for the claim that this agreement, destroyed all opportunities for competition between Pennsalt and Olin and that plans for independent eastern production by each company were thereby thwarted. This was neither the intention nor the effect of the agreement.

Its purpose, according to Drake, was to make certain that if one party decided to "go it alone" while the joint venture was under consideration, the other party would be so advised since it would be futile for the latter to give further consideration to the joint venture. That the agreement was not designed to curtail individual market entry or to thwart plans therefor is borne out by activities of the parties after the understanding had been reached.

In September 1958—seven months after the agreement—the agenda for Pennsalt's annual management meeting raised for firm decision the question whether it would build a sodium chlorate plant, and if so, where. At the meeting held in November 1958, tentative approval was reached to build a 30,000-ton sodium chlorate plant at Calvert City, Kentucky, 20,000 tons of which would be sold as such and 10,000 tons of which would be devoted to the production of ammonium perchlorate.[21] The action taken was based upon a study of the capital requirements and profitability of the venture reflected in a report of October 31, 1958 from A. S. Woodward, manager of engineering, to Vice President LaLende. The purpose of Pennsalt in going into perchlorates was to enable Pennsalt independently to undertake the manufacture of sodium chlorate. Pennsalt's interest in a plant of its own continued throughout 1958.

So far as Olin is concerned, the record is replete with evidence that its interest in building a sodium chlorate plant of its own was not terminated by the

[21] Ammonium perchlorate is used as an oxidizer for high energy solid state missile propellants. Sodium chlorate is the raw material out of which ammonium perchlorate is made. The profit obtainable from the latter was much greater than that which could be derived from the former. A plant which produced both products would yield an overall rate of return satisfactory to Pennsalt.

production agreement. Illustrative is the so-called Whither report of the Chemicals Division which was made on April 10, 1959. This recommended that Olin enter the sodium chlorate business immediately by constructing a 15,000-ton sodium chlorate plant adjacent to its existing chlorine-caustic soda plant at Mackintosh, Alabama. At a meeting on April 16, 1959, between representatives of the Chemicals Division and corporate staff, the proposed Mackintosh project was not deemed sufficiently attractive to be approved. The matter was not dropped, but it was determined that there should be further study on certain specified points. In October 1959 the Chemicals Division filed another Whither report which made a definitive recommendation that sodium chlorate be a wholly Olin project but that the plant be located at Chattanooga instead of Mackintosh. Olin's corporate staff did not disapprove or otherwise act upon the October 1959 report prior to the joint venture decision of 1960.

In view of this evidence it is impossible to attribute to the production agreement the stultifying affect on individual competition by Olin and Pennsalt which the Government would ascribe to it. The agreement did not constitute an unreasonable restraint of trade in violation of Section 1 of the Sherman Act.

A judgment will be entered dismissing the complaint as amended.

The foregoing opinion constitutes the findings of fact and conclusions of law required by F.R.C.P. 52(a).

At: Wilmington, Delaware.

Date: May 1, 1963.

UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Civil Action No. 2282

UNITED STATES OF AMERICA

v.

PENN-OLIN CHEMICAL COMPANY, OLIN MATHIESON CHEMICAL CORPORATION, AND PENNSALT CHEMICALS CORPORATION

ORDER ENTERING JUDGMENT

AND NOW this 15th day of May, 1963, this case having come on for final hearing on the merits, and having been fully heard upon oral testimony, depositions, exhibits, and argument of counsel for the respective parties, and having been maturely considered by the Court, and Findings of Fact and Conclusions of Law having been filed, it is, for the reasons set forth in the opinion of this Court dated May 1, 1963:

ORDERED that judgment be and it hereby is entered in favor of each of the defendants and against the plaintiff.

/s/ EDWIN D. STEEL, JR.,
United States District Judge.

Approved as to form:

/s/ DANIEL J. FREED,
Attorney for Plaintiff.

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IN THE

Supreme Court of the United States

OCTOBER TERM, 1963

No. 503

UNITED STATES OF AMERICA,
Appellant,

v.

PENN-OLIN CHEMICAL COMPANY, ET AL.

On Appeal From the United States District Court For the District of Delaware

APPELLEES' MOTION TO AFFIRM

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IN THE

Supreme Court of the United States

OCTOBER TERM, 1963

UNITED STATES OF AMERICA, *Appellant*, v. PENN-OLIN CHEMICAL COMPANY, et al.	No. 503

On Appeal From the United States District Court For the District of Delaware

APPELLEES' MOTION TO AFFIRM

Appellees move, pursuant to paragraph 1(c) of Rule 16 of the Revised Rules of this Court, that the judgment of the district court be affirmed.* That court's decision that appellant failed "to establish that the joint venture probably will have the effect of substantially lessening competition" (44a) and that, on the contrary, the probabilities are that Penn-Olin will have the effect of stimulating competition (43a) is a factual determination which presents no substantial question requiring further argument.

Question Presented

Does the formation of a jointly-owned subsidiary to produce and sell sodium chlorate in the Southeastern United States adversely affect competition in violation of either Section 7 of the Clayton Act or Section 1 of the Sherman Act where the evidence showed and the trial court found that the formation of the joint subsidiary would not lessen competition in the relevant market, and in fact has increased competition.

*On October 24, 1963, Mr. Justice Brennan signed an order extending the time of appellees to file such a motion to and including November 12, 1963.

Statement

In February 1960 Pennsalt Chemicals Corporation (Pennsalt) and Olin Mathieson Chemical Corporation (Olin) formed a jointly-owned subsidiary, Penn-Olin Chemical Company (Penn-Olin), to produce and sell sodium chlorate in the Southeastern United States. Prior to that time Olin had never commercially produced sodium chlorate (12a)* and Pennsalt had only produced it in the Pacific Northwest (11a). Thus Penn-Olin brought a new competitor into the Southeast sodium chlorate market, which is the relevant market for determining the competitive impact of the joint venture (11-12, 14a-24a).

Prior to Penn-Olin, as appellant admits, Hooker Chemical Corporation (Hooker) and American Potash & Chemical Corporation (American Potash) were the only producers of sodium chlorate in that market; "[n]o new firms had entered the industry in a decade (App. 33a); prices were stable (PX 254, ¶ 1); and little effort had been made to expand existing uses or to develop new ones (PX 146, p. 2)." (8) As the trial court put it, Hooker and American Potash "had a virtual monopoly in the southeast" (34a, 42a-43a)—over 91 per cent of the sodium chlorate business (28a)—and Penn-Olin was formed to break into this market to challenge the supremacy of these two dominant companies (27a-28a).

Since the formation of Penn-Olin, competition in the Southeastern sodium chlorate market has in fact become more vigorous. Both Hooker and American Potash have increased their sodium chlorate capacity and have intensified their competitive efforts (30a-31a). Another new producer, Pittsburgh Plate Glass Company, has entered the market (32a). Appellant's own witness testified that since Penn-Olin there had been no lessening in competition and that

*All page references are to appellant's jurisdictional statement and the district court's opinion printed as a supplement thereto.

he anticipated no such lessening in the future (42a). The evidence showing that competition has become more vigorous since Penn-Olin is not challenged here by appellant, and is exemplified by the following comparison of the sodium chlorate producers in the Southeast market before and after Penn-Olin (43a):

	Sodium Chlorate Capacity in Tons	
Company	1959	Projected-1962
Hooker	29,150	32,000
American Potash	12,000	22,500
Penn-Olin	—	26,500
Pittsburgh Plate Glass	—	15,000*
Total	41,150	96,000

Argument

Appellant concedes that the district court correctly applied the "lessening of competition" test of Section 7, which requires a comparison between the competitive situation brought about by the formation of Penn-Olin and the competitive situation which, with reasonable probability, would have existed but for Penn-Olin (16, 40a-41a).

But appellant asserts that both Pennsalt and Olin were, first, physically "capable" of entering the Southeast sodium chlorate market, and, second, interested in doing so (17-18). Based solely on this claim of physical "capability" plus "interest" (18), appellant claims this Court must infer, as a matter of law, that both Pennsalt and Olin *would* probably have built sodium chlorate plants in the Southeast and that the joint venture would necessarily lessen competition. Neither inference is warranted.

At trial appellant tried unsuccessfully to establish that, but for Penn-Olin, both Pennsalt and Olin would have

*To be achieved gradually on a stepped-up basis.

built sodium chlorate plants in the Southeast. But the evidence only showed what appellant now correctly labels as "capability plus interest" (18). For about twenty years Pennsalt had produced sodium chlorate at Tacoma, Washington, but it had no marketing or sales coverage for the sodium chlorate market in the Southeast (34a-35a, 19a-20a). For a number of years Pennsalt had made marketing and cost studies of a sodium chlorate plant in the Southeast, but, as the trial judge concluded, it never decided to build a sodium chlorate plant there "due primarily to the inability of the management to satisfy itself that the plant would be sufficiently profitable to meet the rate of return standard which it had established as a condition for new investments" (35a).

Olin, which had never produced sodium chlorate on a commercial basis, also had investigated the Southeastern market. But Olin, too, had never decided to build a sodium chlorate plant because, as the trial court found, of the unsatisfactory projected rate of return (35a-36a).

As the trial court pointed out, the most favorable inference from appellants' point of view that might be drawn from this evidence is that, but for Penn-Olin, either Pennsalt or Olin—but not both—would have entered the market (39a). But even under this assumption, appellant could not show that the entry of either Pennsalt or Olin would have provided more competition than was provided by Penn-Olin (39a-42a).

Appellant assumes that two possible competitors are better, as a matter of law, than one actual competitor. Appellant totally ignores the concrete and evidence-supported actual increase in competition which has resulted from Penn-Olin, and makes no effort to show what competition might have resulted but for Penn-Olin (*cf.* 18-19). Appellant thus ignores this Court's opinion of Section 7 that:

> "Taken as a whole, the legislative history illuminates congressional concern with the protection of *com-*

> *petition*, not *competitors*, and its desire to restrain mergers only to the extent that such combinations may tend to lessen competition." *Brown Shoe Co.* v. *United States*, 370 U. S. 294, 320 (1962).

Comparing the competitive situation which resulted from Penn-Olin with the competitive situation that was likely to obtain but for Penn-Olin, the district court found that the entry of Penn-Olin in the Southeastern sodium chlorate market "will in all likelihood increase the competition which theretofore existed and bring to buyers of sodium chlorate and to the public the benefits which normally result therefrom." (43a) It based this conclusion on the prior virtual monopoly of the Southeastern market by Hooker and American Potash (42a-43a), the testimony of appellant's own witness that there had been no lessening in the vigor of competition since Penn-Olin (42a), the entry of a fourth competitor, Pittsburgh Plate Glass, into a previously two-company market (43a), and the lack of any evidence of an anti-competitive effect from Penn-Olin (41a-42a). Applying what appellant concedes to be the proper legal standard,* the trial court found that the formation of Penn-Olin would probably stimulate competition (43a) and that it did not violate Section 7 of the Clayton Act.

This is not, as appellant claims (14-15), a test case for joint ventures. Rather, the decision of this case depends on a factual determination by the district court that Penn-Olin tended to increase, not lessen, competition.

Appellant has also referred to two secondary questions: whether the statutory requirement of Section 7 that the acquired corporation be "engaged . . . in commerce" was met (21-23) and whether the formation of Penn-Olin

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*"The district court properly recognized (App. 40a-41a) that the 'lessening of competition' standard requires a comparison between the competitive situation brought about by the challenged transaction and the situation which, with reasonable probability, would have existed had the transaction not occurred." (16)

violated Section 1 of the Sherman Act (23-24). As the trial court recognized (6a-7a), neither question need be reached if it is found that the joint venture did not adversely affect competition in violation of Section 7.

Conclusion

There is no significant question presented by this appeal. Appellant simply failed to prove its case. There being no substantial question which requires further consideration, appellees move this Court to affirm the district court's judgment.

November 12, 1963

Respectfully submitted,

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INDEX

	Page
Opinion below	1
Jurisdiction	1
Question presented	2
Statutes involved	2
Statement	3
I. The facts	4
A. The companies involved	4
1. Olin	1
2. Pennsalt	2
3. Penn-Olin	6
B. The sodium chlorate market	6
1. The chemical	6
2. The structure of the industry	7
C. The joint venture in its commercial setting	8
1. Background	8
2. Pennsalt's efforts to build a sodium chlorate plant in the southeast on its own	9
3. Olin's independent efforts to enter the sodium chlorate industry as a producer	14
4. The parents' joint activities antedating the formation of Penn-Olin	16
II. The decision of the district court	18
Summary of Argument	20
Argument	23
Introduction	23
I. The joint venture between Pennsalt and Olin violated Section 7 of the Clayton Act	28
A. The formation of Penn-Olin involved an acquisition of stock or assets covered by Section 7 of the Clayton Act	29
B. The Penn-Olin joint venture may substantially lessen competition in the southeastern market for sodium chlorate	34

Argument—Continued
I. The joint venture, etc.—Continued
B. The Penn-Olin joint, etc.—Continued
1. There is a reasonable probability that if Pennsalt and Olin had not formed Penn-Olin as a joint venture, both would have entered the southeastern market or one would have entered while the other remained a significant potential competitor, threatening entry whenever market conditions made entry desirable..... Page 35
a. Pennsalt and Olin were each fully capable of entering and independently likely to enter the sodium chlorate market in the southeast..... 36
b. There is no reason to believe that the entry of either Pennsalt or Olin would have caused the other to abandon its plans to enter the market, if not immediately, whenever lack of effective competition or other market conditions offered the prospect of profit..... 42
2. Penn-Olin's entry into the southeastern market will furnish substantially less competition than either (a) the entry of both Pennsalt and Olin or (b) the entry of one of these with the other remaining a significant potential competitor..... 44
II. The joint formation of Penn-Olin was a combination in restraint of trade in sodium chlorate in the southeastern United States, in violation of Section 1 of the Sherman Act..... 53
Conclusion..... 58
Appendix..... 59

CITATIONS

Cases:

	Page
Aluminum Co. of America v. *Federal Trade Commission*, 284 Fed. 401, certiorari denied, 261 U.S. 616	24, 33
Brown Shoe Co. v. *United States*, 370 U.S. 294	54
Federal Trade Commission v. *Motion Picture Adv. Service Co.*, 344 U.S. 392	56, 57
Northern Pac. Ry. Co. v. *United States*, 356 U.S. 1	56
Procter & Gamble Co., Docket No. 6901, decided on November 26, 1963, by the Federal Trade Commission	48
Standard Oil Co. v. *United States*, 337 U.S. 293	57
Times-Picayune Pub. Co. v. *United States*, 345 U.S. 594	56
Timken Roller Bearing Co. v. *United States*, 341 U.S. 593	55
United States v. *Aluminum Co. of America*, 148 F. 2d 416	54
United States v. *Columbia Steel Co.*, 334 U.S. 495	56
United States v. *Griffith*, 334 U.S. 100	54
United States v. *Imperial Chemical Industries*, 100 F. Supp. 504	55
United States v. *Minnesota Mining and Mfg. Co.*, 92 F. Supp. 947	55
United States v. *National Lead Co.*, 63 F. Supp. 513, affirmed, 332 U.S. 319	55
United States v. *New England Fish Exchange*, 258 Fed. 732	33
United States v. *Paramount Pictures, Inc.*, 334 U.S. 131	54
United States v. *Patterson*, 59 Fed. 280	54
United States v. *Philadelphia National Bank*, 374 U.S. 321	29, 33, 46
United States v. *Reading Co.*, 226 U.S. 324	54
United States v. *United Shoe Machinery Corp.*, 247 U.S. 32	54

Statutes:

	Page
Clayton Act. 38 Stat. 730, as amended:	
Section 3	56
Section 7	3, 18, 20, 21, 23, 24, 28, 29, 30, 32, 33, 53, 54, 55, 57
Federal Trade Commission Act, Section 5, 38 Stat. 719, as amended	57
Sherman Act, Section 1, 26 Stat. 209, as amended, 15 U.S.C. 1	2, 3, 23, 54, 56, 57
Miscellaneous:	
Comment, *Joint Subsidiaries and Section 7 of the Clayton Act*, 39 U. Det. L. J. 223	26, 33
Report of the Attorney General's Nat'l. Committee to Study the Antitrust Laws (1950) 320	48
S. Rep. No. 1775, 81st Cong., 2nd Sess	54, 58
Weston, *The Role of Mergers in the Growth of Large Firms* (1953) 109	25
Wilcox, *Competition and Monopoly in American Industry*, T.N.E.C. Monograph No. 21 (1940)	47

In the Supreme Court of the United States

OCTOBER TERM, 1963

No. 503

UNITED STATES OF AMERICA, APPELLANT

v.

PENN-OLIN CHEMICAL COMPANY, ET AL.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

BRIEF FOR THE UNITED STATES

OPINION BELOW

The opinion of the district court, constituting its findings of fact and conclusions of law (R. 1543-1589),[1] is reported at 217 F. Supp. 110.

JURISDICTION

On May 15, 1963, the district court entered judgment dismissing the government's amended complaint (R. 1590), and the United States filed a notice of ap-

[1] "R." refers to the printed record in this Court; the government's (plaintiff's) exhibits are designated "PX"; and defendants' exhibits are cited as "DX". A compilation of the places in the record where each exhibit was offered and received into evidence is contained in the Appendix *infra*, p. 59.

peal on July 15, 1963 (R. 1591). Probable jurisdiction was noted on December 9, 1963 (R. 1593; 375 U.S. 938). Section 2 of the Expediting Act, 32 Stat. 823, as amended, 15 U.S.C. 29, vests this Court with jurisdiction to review the judgment on direct appeal.

QUESTION PRESENTED

Olin Mathieson Chemical Corporation and Pennsalt Chemicals Corporation jointly formed the Penn-Olin Chemical Company to produce and market sodium chlorate in the southeastern United States. The question presented is whether this joint venture was prohibited by Section 7 of the Clayton Act and Section 1 of the Sherman Act where each parent corporation was independently capable of entering the market as a significant competitor and was seriously considering that course prior to formation of the joint venture.[2]

STATUTES INVOLVED

Section 1 of the Sherman Act, 26 Stat. 209, as amended, 15 U.S.C. 1, provides in pertinent part:

> Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States * * * is hereby declared to be illegal * * *.

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[2] There is no dispute about adjuvant determinations. Sodium chlorate was stipulated as a "line of commerce". The district court found that the southeastern United States was the appropriate "section of the country", and we do not challenge that finding.

The relevant paragraph of Section 7 of the Clayton Act, 38 Stat. 731, as amended, 15 U.S.C. 18, reads as follows:

> That no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.

STATEMENT

This is a direct appeal from a final judgment of the district court (Steel, J.) dismissing after trial a civil antitrust action brought by the United States. The government's amended complaint (R. 1-9) charged violations of Section 1 of the Sherman Act and Section 7 of the Clayton Act. It alleged that Olin Mathieson Chemical Corporation ("Olin") and Pennsalt Chemicals Corporation ("Pennsalt"), through the joint formation of the Penn-Olin Chemical Company ("Penn-Olin") to produce and market sodium chlorate, had, *inter alia,* eliminated potential competition between themselves in the production and sale of sodium chlorate.

I

THE FACTS

A. THE COMPANIES INVOLVED

1. Olin

Olin is a large diversified industrial corporation formed in 1954 by the merger of Olin Industries, Inc. and Mathieson Chemical Corporation (R. 1546). Its chemical division, one of seven operating divisions, produces a wide range of chemicals and chemical products in plants located in 15 states, and accounts for about 30 percent of Olin's operating revenues (R. 1546). In 1960 Olin's net sales of chemicals and chemical products were $217 million; its total sales amounted to $690 million; its assets totaled $860 million; and it made capital expenditures of almost $49 million (R. 1546–1547).

In the early 1930's one of Olin's predecessors produced sodium chlorate for its own use (R. 1554). Olin itself, however, has never engaged in commercial production of this chemical, although it purchases sizeable amounts of sodium chlorate for internal consumption (R. 1567, and fn. 19; PX 406, R. 1266–1267). It also owns a patented process for bleaching pulp with chlorine dioxide; this "Mathieson process" consumes sodium chlorate, and is widely used by paper manufacturers under royalty-free licenses (R. 1553, and fn. 5). By 1960 most of the chlorine dioxide generated by paper manufacturers—100 percent in the west, and around 60 percent in the remainder of the country—was being produced under

the Mathieson process (R. 1552–1553; PX 188, 245, R. 773–776, 834).

2. Pennsalt

Pennsalt has been engaged in the chemical business for more than 110 years (R. 1546). Its sole activity is the production and sale of chemicals and chemical products throughout the United States (R. 1545). In 1960 Pennsalt's sales were more than $90 million, and it had assets of approximately the same amount (R. 1546). Since 1958 it has been engaged in a $55 million modernization and expansion program (R. 1546).

From 1941 on Pennsalt has been producing sodium chlorate at a single plant in Portland, Oregon (R. 1552). The capacity of the Portland plant has steadily been increased from 2,194 tons per year in 1941 to 15,392 tons in 1959 (R. 1552). Most of Pennsalt's sales of sodium chlorate have been to users located west of the Rocky Mountains (R. 1552) where, in 1960, it had 57.8 percent of the market (R. 1562). In that same year, Pennsalt, which had installed the Mathieson pulp-bleaching process in western paper mills under a 1953 agreement with Olin (see *infra*, p. 17), supplied 100 percent of the sodium chlorate used by those mills (R. 1552–1553).

Pennsalt also has marketed sodium chlorate in the southeastern United States since 1957 (PX 414, Table I (unprinted)). In 1960 it shipped 4,186 tons of the chemical, amounting to 27 percent of its total sodium chlorate sales that year, into the southeast (R. 1560). Of these shipments 3,203 tons were sold

for Pennsalt by Olin, acting as Pennsalt's sales agent under a contract of December 1957 (R. 1560; see *infra*, p. 17). These sales in the southeast provided an outlet for production which Pennsalt believed it could not have sold in the west (PX 220, 229, R. 812, 817).

3. Penn-Olin

Penn-Olin was organized on February 25, 1960, pursuant to a joint venture agreement between Olin and Pennsalt dated February 11, 1960 (R. 1547; PX 175, R. 736). Pennsalt and Olin each own one-half of its capital stock, and the positions as directors and officers are also divided equally between the two parents (R. 1547).

Penn-Olin's plant, located at Calvert City, Kentucky, was built at a cost of about $6.5 million; it has the capacity to produce 26,500 tons of sodium chlorate per year; and it began operations in September 1961 (R. 1547). By agreements executed in October 1961—implementing the February 11, 1960, understanding—Pennsalt has undertaken to operate the plant, and Olin has assumed responsibility for sales (R. 1547). Olin began to solicit sales on behalf of Penn-Olin around May 1960 (PX 226, 232, 408, R. 815, 823–825, 1384), and actual sales commenced in January 1961 (PX 286, 336–338, R. 866, 912–915).

B. THE SODIUM CHLORATE MARKET

1. The chemical

Sodium chlorate is produced commercially by electrolysis of an acidified solution of salt (sodium chloride) (R. 1549). All sodium chlorate of like purity

is fungible and can be used interchangeably (R. 1549). In 1960, 91,900 tons of the chemical, valued at around $18 million, were produced domestically: 54,600 tons east of the Rocky Mountains, and 37,300 tons in the west (R. 1549).

As noted above, the chemical is used primarily in the pulp and paper industry, which consumed 64 percent of total production in 1960 (R. 1550). It is also employed in the production of weed control herbicides, agricultural chemicals, and certain derivatives such as ammonium perchlorate (R. 1550).

2. The structure of the industry.

Prior to the formation of Penn-Olin three producing companies—Pennsalt, American Potash & Chemical Corporation ("AmPot"), and Hooker Chemical Corporation ("Hooker"), or their predecessors—made up the domestic sodium chlorate industry (R. 1550). Hooker, the largest of the three companies, entered the industry in 1956 when it acquired Oldbury Electro Chemical Company, which had been producing sodium chlorate since the turn of the century (R. 1550–1551). Hooker has two plants: one at Columbus, Mississippi, having a 32,000-ton capacity in 1960, and another at Niagara Falls, New York, with a capacity of 18,000 tons (R. 1551). AmPot, which entered the industry in 1955 through the acquisition of Western Electro Chemical Company, also has two plants, located at Henderson, Nevada (27,000-ton capacity in 1960), and Aberdeen, Mississippi (15,000 tons) (R. 1551).

The two most important geographic markets served by these companies were the southeastern and western United States (R. 1558). The southeastern market, with which we are concerned here, developed as follows: Hooker's predecessor had constructed a plant at Columbus, Mississippi, in 1954, the capacity of which almost doubled between 1957 and 1960 (R. 1551). AmPot authorized construction of a plant at Aberdeen, Mississippi, in 1957, to meet the growing demand in the southeast and to enable it to compete effectively in that area with Hooker's Columbus plant 1551.) The Aberdeen plant was in operation by 1959, and in 1961 its capacity was increased by 50 percent to 22,500 tons per year (R. 1551).

After the institution of this action two new firms entered the industry. Pittsburgh Plate Glass Company announced plans to construct a 15,000-ton-per-year sodium chlorate plant in the southeast, at Lake Charles, Louisiana (R. 1553). And Pacific Engineering & Production Company of Nevada has built a 5,000-ton plant in the west (at Henderson, Nevada), which presumably commenced production in late 1962 (see R. 1553).

C. THE JOINT VENTURE IN ITS COMMERCIAL SETTING

1. Background

As noted above, in the late 1950's the only producers of sodium chlorate in the United States were Hooker, AmPot, and Pennsalt. No new firms had entered the industry in the previous decade (R. 1571); prices were stable (PX 254, R. 846–847); and little effort

had been made to expand existing uses or to develop new ones (PX 146, R. 719).

During the 1950's the sodium chlorate market began to grow, chiefly because of the adoption and rapid expansion of chlorine dioxide bleaching in the pulp industry (R. 1550); domestic production more than quadrupled between 1950 and 1960 (PX 376, R. 928). This expansion was attributable primarily to the efforts of Olin and Allied Chemical Corporation (Solvay Division) in granting royalty-free licenses to pulp and paper manufacturers under their patented processes for the generation of chlorine dioxide (R. 1552–1553, and fn. 5; see *supra*, p. 4).[3] The growth has been most pronounced in the southeast. By 1960 that area had the heaviest concentration of sodium chlorate buyers, of which the pulp and paper mills were by far the largest, and nearly half the national sodium chlorate productive capacity (R. 1557). In that same year the southeastern market was divided among the three producers in the following proportions: Hooker (49.5 percent), AmPot (41.6 percent), Pennsalt (8.9 percent) (R. 1566).

2. Pennsalt's efforts to build a sodium chlorate plant in the southeast on its own

Prior to the joint venture, Pennsalt had long been interested in establishing a plant within the rapidly growing southeastern sodium chlorate market. As

[3] As of 1961 there were four different processes that could be used to generate chlorine dioxide from sodium chlorate; however, the vast majority of the chlorine dioxide used by pulp and paper companies was produced under the Mathieson and Solvay processes (PX 188, 245, 378, R. 773–776, 834, 939–940).

early as 1951 Pennsalt had made cost studies for a plant at Calvert City (see PX 61, R. 628), and from 1955 on it had given almost continuous consideration to the establishment of a facility in the southeast (R. 1572).

After considering and rejecting three different proposals during 1955-1956 (see PX 66, R. 634-635; R. 260-262, 363-364), Pennsalt's management (in January 1957) set up a "task force" to evaluate the company's future in sodium chlorate production in the east, "either alone or jointly with a partner such as Olin * * *" (PX 72, 73, 74, R. 637-640). The purpose of the study was "to find out how we can do it rather than why we can't" (PX 74, R. 640).

About seven weeks later the "task force" reported (PX 82, R. 643):

> Pennsalt's important position in sodium chlorate in the northwest has provided us with the manufacturing, selling, and technical service know-how required for the merchandising of this product. It would appear logical therefore for us to extend our position in the east provided we could be assured of a market potential of at least 15,000 tons per year.

The report estimated that a 15,000-ton plant at Calvert City would cost $4.8 million and would return 11.4 percent on investment (PX 82, R. 643). A 14.1 percent return was predicted for a 20,000-ton plant at the same location (PX 82, R. 644).

On the basis of those findings, Pennsalt retained a management consultant firm, Arthur D. Little, Inc., to study its sodium chlorate selling potential in the

east. The Little report extensively analyzed the market and concluded that "there appears to be an excellent opportunity for another supplier in the East" (PX 96B, R. 654). The following factors were stressed in the report as points favoring Pennsalt's entry into the market: Pennsalt "enjoys a good reputation in the pulp trade, it has the experience of the Northwest market to draw upon, and it has the Mathieson chlorine dioxide generating process. In addition, the judicious selection of a location for the new plant could help Pennsalt gain a stronger foothold in the Eastern pulping area" (PX 96B, R. 656).

On the basis of the Little report, Pennsalt's commercial development department recommended that the company build a plant for the manufacture of sodium chlorate in the east (PX 96C, R. 679). The department reasoned that Pennsalt could obtain a "sound" position in the eastern market because: (1) additional productive capacity was needed in the area, (2) Pennsalt's personnel were familiar with the technology of the chemical's use for pulp bleaching, etc., (3) its sales personnel were successfully marketing "companion products" to the pulp and paper industry, (4) Pennsalt had "an assured initial sales base with certain Eastern accounts * * *", and (5) Calvert City was an advantageous location from which to serve the pulp and paper market (PX 96C, R. 674, 676, 677–678).

Thereafter, at a staff meeting to discuss eastern chlorate opportunities, the heads of Pennsalt's eastern and western industrial divisions expressed their

view that Pennsalt could capture from 5000 to 8000 tons of the then existing sodium chlorate sales to paper manufacturers and some portion of the expanding demand, as well as an additional 5000 tons in the agricultural market (PX 99, R. 688). The staff then requested the company's chief engineer to prepare up-to-date cost estimates, and he reported that a 25,000-ton plant would return from 15.9 to 22.2 percent on total investment; and would cost about $7.2 million (PX 100, R. 691). In December 1957, however, Pennsalt's management, emphasizing that it considered the estimated rate of return to be unattractive, decided that unilateral construction of an eastern sodium chlorate plant was "unlikely" (PX 102, R. 692–693). In the same memorandum, a report on a management meeting in the president's office, it was pointed out that Olin would be "a logical partner" in a joint venture and that there were indications Olin "would be actively interested in distributing in the East 2,000 tons of our Portland chlorate production * * *." (PX 102, R. 692–693).

In early 1958 Pennsalt again revived its plans to enter the sodium chlorate market in the southeast as an independent entrepreneur. This time a combined ammonium perchlorate-sodium chlorate plant was proposed; the "primary objective for going into perchlorates * * * [was] to facilitate the justification for [sodium] chlorate manufacture in the South" (PX 122, R. 702). Arguing in favor of the inde-

pendent venture, a group of Pennsalt's officials stated (PX 146, R. 719):

> As the newest producer, Pennsalt should and could take leadership in (1) promoting sales aggressively, (2) extending existing uses, (3) developing new uses, (4) improving use technology.

It was estimated that a plant built at Calvert City would have returned 26.2 percent on total investment (PX 153, Table III (unprinted)). Final decision whether to build was postponed in January 1959, however, after discussions with Olin. It was decided that independent production should be reconsidered only if Olin did not desire to proceed further with a joint venture then under discussion (PX 154, 392, R. 727, 1061-1062). In April 1959 Pennsalt's president said that the unilateral project had been put to one side "pending receipt of word from [Olin]" on the joint venture (PX 166, R. 731). No final decision was made until the creation of Penn-Olin, as the district court found (R. 1573, and fn. 22).[4]

[4] Around the time Penn-Olin was formed, Pennsalt—in line with its views on the inadequacy of existing efforts to find new uses for sodium chlorate (see PX 146, R. 719)—began experiments to adapt the chemical for use in textile bleaching, in the hope that it would be given sales responsibility for the joint subsidiary (See PX 215, 399, R. 809, 1191). Pennsalt's sales manager testified that he did not look forward to continuing the research if Olin, and not Pennsalt, was to sell Penn-Olin's output (PX 399, R. 1190), as ultimately turned out to be the case (R. 1547).

3. Olin's independent efforts to enter the sodium chlorate industry as a producer

Beginning around 1950 Olin, too, investigated the possibility of entering the sodium chlorate industry in the eastern United States, and took various steps toward that end. It made plant location surveys, conducted experiments to develop a feasible production technology, and undertook negotiations to have a plant built (see PX 1–54, R. 441–607; R. 1572). Olin recognized that production of sodium chlorate was an "essential and integral" part of its chemical business, and that (PX 254, R. 846)—

> The product [sodium chlorate] is made by an electrolytic process using salt as the main raw material: This is intimately related to the extensive caustic-chlorine operations of Olin Mathieson. The same general technical knowledge is required and is transferable.

Moreover, the general manager of its chemical division "believe[d] that the sale of chlorate will give help in selling other chemicals to the paper industry" (PX 245, R. 835).

In early 1958 Olin's chemical division launched "a real drive on [its] part to go ahead with the chlorate production on its own" (PX 406, R. 1297). In April of that year the chemical division issued a "Whither Report" on its objectives for future expansion, which stated, *inter alia* (PX 15, R. 510):

> We have an unparalleled opportunity to move sodium chlorate into the paper industry as the result of our work on the installation of chlorine dioxide generators. We have a captive consumption for sodium chlorate.

Olin's engineering supervisor, in the course of preparing cost estimates for the chemical division, concluded that production of sodium chlorate was "an attractive venture" because (1) it "represents a logical expansion of the product line of the Industrial Chemicals Division", (2) "[w]ith respect to one of the major markets, pulp and paper bleaching, we have a favorable marketing position, particularly in the southeast", and (3) production of the chemical offered an attractive potential return (PX 22, R. 523–524).

About one year later, after much additional study, the chemical division recommended to management that Olin unilaterally construct a sodium chlorate plant in the southeast (PX 32, R. 565). As revised in October 1959 the recommendation advised construction of a 15,000-ton plant at Chattanooga, Tennessee, and predicted a 13.1 percent return on gross investment after taxes (see PX 32, 33, R. 570, 576). The chemical division argued that total demand for sodium chlorate would outstrip industry capacity by 1962 and had already done so in the southeast (PX 32, R. 564). It pointed out that Olin's technical service people had established valuable goodwill with firms in the pulp and paper industry; and it predicted that Olin could secure about one-third of the tonnage (around 14,000 tons per year) used by southeastern paper mills (PX 32, R. 564).

At this time, the manager of the chemical division felt that Olin probably would not proceed with a joint production facility, and that an independent plant was "definitely more of a possibility than it

had been previously * * *" (R. 227–229). Pennsalt, however, later came up with "new facts" in support of the joint venture, and, as the court found, Olin's management never finally decided whether to accept or reject the division's recommendation until the joint venture was consummated (R. 235, 1573, and fn. 22).

As part of its efforts to become a sodium chlorate producer, Olin, recognizing that development of a good practical electrolytic cell was the key to independent entry (see PX 406, R. 1281), undertook experiments to produce a viable cell and negotiations to purchase one (see PX 28, 33, R. 553, 571). Its experiments began in 1956, and by early 1959 Olin had constructed a cell using platinized titanium anodes that "operated for more than 100 days with very promising results" (PX 33, R. 573). Later in the year its experiments showed that "there was an excellent chance of our producing sodium chlorate at a cost lower than whatever the literature studies revealed * * *" (PX 406, R. 1279). Accordingly, in November 1959 it reached a tentative agreement with Vickers-Krebs, Ltd., a plant construction company, on a cooperative program for development of the platinized titanium anodes process (PX 51, R. 603). These plans to develop a new production technology were cancelled after Penn-Olin was formed and production responsibilities were assigned to Pennsalt (PX 401, R. 1220–1222).

4. The parents' joint activities antedating the formation of Penn-Olin

During the years when Pennsalt and Olin were conducting independent studies about the feasibility of

building their own plants, they were also discussing joint entry into the southeastern market (R. 1573). The first joint dealing between the parties (in 1953) was a licensing agreement, not related to the southeast, under which Olin promised to grant immunity from infringement suits to any pulp and paper companies designated by Pennsalt to use the Mathieson bleaching process (R. 1552–1553; PX 60, R. 625; see p. 5, *supra*).

The next joint arrangement was a sales agreement of December 1957 which was aimed, in part, at jointly testing the southeastern market (R. 1583). Under this agreement Pennsalt contracted to make available to Olin, as an exclusive seller, 2,000 tons of sodium chlorate per year for two or three years; and Olin agreed to sell the chemical "only to pulp and paper mills in the southeast," except for one company (Buckeye Cellulose Company of Foley, Florida) which Pennsalt "reserved the right to serve directly" (PX 104, R. 695; R. 1583).

The parties' final joint arrangement was a so-called production agreement dated February 3, 1958, in which each agreed that "neither * * * should move in the chlorate or perchlorate field without keeping the other party informed * * *", and each bound itself "to bring to the attention of the other any unusual aspects of this business which might make it desirable to proceed further with production plans" (PX 111, R. 700; see R. 1587–1588). The purpose of the latter agreement was to assure that each party would advise the other of any plans to independently enter the market before it would take any definite action (see R. 1588).

These agreements were in force until superseded by the joint venture agreement of February 11, 1960 (see R. 1583). The latter agreement, which was promptly announced in the hope that other potential competitors might thereby be deterred from entry and "the market might be preempted" (R. 1570), provided that the two corporations would engage in a joint venture by each taking 50% of the stock of a new corporation, Penn-Olin. The corporation was to spend (and did spend) approximately $6,500,000 to build a plant at Calvert City, Kentucky, with a capacity of over 25,000 tons. The plant began operations in 1961 with Pennsalt responsible for production and Olin in charge of sales for the corporation (R. 1547).

II

THE DECISION OF THE DISTRICT COURT

The district court found that the government had not shown that the effect of the joint venture "may be substantially to lessen competition" in violation of Section 7 of the Clayton Act.[5] It also ruled that the joint venture did not violate the Sherman Act, noting merely that "the anticompetitive standard imposed by Section 7 of the Clayton Act is less stringent than that of the Sherman Act" (R. 1548). The parties had stipulated that sodium chlorate was an appropriate line of commerce (R. 1548–1549), and that the southeastern United States was a relevant geographic mar-

[5] Finding no violation, the court did not pass upon the disputed issue of Clayton Act coverage—*i.e.*, whether the joint formation of Penn-Olin involved an "acquisition" of the stock or assets of a corporation "engaged in commerce" (see R. 1548).

ket (R. 1555).[6] The court rejected the government's further claim that there also was a national market in sodium chlorate (R. 1563), and we do not press that contention here. In the southeastern market, the court found that Pennsalt and Olin had never been actual competitors (R. 1565).

The principal issue was whether the joint venture was unlawful in that it eliminated the potentiality of competition between Pennsalt and Olin in the southeastern market. On that point the court found that Pennsalt and Olin each had an extensive background in sodium chlorate—the former in manufacturing and selling, the latter having contacts with the chief purchasers, as well as experience in the technical aspects of bleaching pulp (R. 1572, 1574); that each had evinced long standing interest in independently entering the southeastern market (R. 1572); that each possessed the resources and general capability needed to build its own plant in the southeast (R. 1574); and that the forecasts of each company indicated that an independently operated plant could be run at a profit (R. 1574, and fn. 23). In addition, the court found that both Olin and Pennsalt could have been effective independent competitors of Hooker and AmPot in the southeast (R. 1574). Finally, the court ruled that prior to the joint venture neither party had made

[6] There was some dispute between the parties as to which states made up the southeastern market. The court found that the market consisted of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia (R. 1555, fn. 6).

a final decision not to enter the market alone (R. 1573).

Despite these findings the court held that the government had not shown that the effect of the Penn-Olin joint venture "may be substantially to lessen competition." From the premise that Penn-Olin would presumably be as effective a competitor as either of its parents alone, the court reasoned that the government was entitled to judgment only if it proved that "as a matter of probability *both* companies would have entered the market as individual competitors" in the absence of the joint venture (R. 1575, emphasis in original). Finding no evidence that Pennsalt and Olin would have "simultaneously" determined to build their own plants or that the construction of a plant by one would not have discouraged the other, the court concluded that the best that could be said for the government's case was "that one company would have decided to build while the other continued to ponder" (R. 1575–1576). If this was all that was shown as a reasonable probability, the court held, the government was not entitled to judgment.

SUMMARY OF ARGUMENT

I

Section 7 of the Clayton Act prohibits the acquisition by a corporation engaged in interstate commerce of all or part of the stock of another corporation also engaged in such commerce where the effect of the acquisition may be substantially to lessen competition. In the present case, Pennsalt and Olin acquired the

stock of a joint subsidiary, Penn-Olin, in order to engage in a joint venture which, we submit, will substantially lessen competition in what both parties agreed is the relevant market production and sale of sodium chlorate in the southeast.

A. Section 7 covers the acquisition by a corporation engaged in interstate commerce of the stock or assets of another corporation "engaged also in [interstate] commerce." An acquisition comes within this section if the acquired firm is either conducting an interstate business or is intending or preparing to do so. From its inception, Penn-Olin was intended by its organizers to engage in interstate commerce, and it immediately began to arrange for and conduct such business. It was therefore "engaged" in interstate commerce within the meaning of Section 7 when Pennsalt and Olin acquired its stock.

B. The effect of the Penn-Olin joint venture may be substantially to lessen competition. The district court's findings establish that Pennsalt and Olin were each fully capable of entering, and likely to enter, the sodium chlorate market in the southeast. They had each been considering building a plant in the southeast for some time, and neither had abandoned its plans for separate entry prior to the decision to collaborate. There is, moreover, no reason to believe that the entry of either Pennsalt or Olin would have caused the other to abandon its plans to enter the market, if not immediately, whenever a lack of competition in the market made entry desirable. It is thus probable that, if Pennsalt and Olin had not

formed Penn-Olin, either one or both of them would have entered the market and that, if only one of them had entered, the other would have remained a highly significant potential competitor.

Penn-Olin's entry into the southeastern market will furnish substantially less competition than either the entry of both Pennsalt and Olin or the entry of one of them, with the other remaining a significant potential competitor. Only two companies had plants in the southeast and competition would have plainly benefited from the addition of two additional competitors, instead of merely one (Penn-Olin). Even if only one of the companies had entered the market with a local plant and the other had remained a potential competitor, competition would have been substantially greater than with Penn-Olin alone. The potential competition of a company such as Pennsalt or Olin would significantly limit the control of prices and production shared by the three companies actively selling in the southeast. The threat of production, sales, or product innovations by a potential competitor with the ability of Pennsalt or Olin would serve as a constant spur to similar developments by those in the market. The joint venture ended not only these substantial elements of competition, but also the real chance that both Pennsalt and Olin would have consummated the plans they had repeatedly considered to build separate plants. For these reasons, the joint venture may result in a substantial lessening of competition in the market in the southeast.

II

The formation of Penn-Olin also constituted a combination and conspiracy between Pennsalt and Olin in unreasonable restraint of trade, in violation of Section 1 of the Sherman Act. The Sherman Act, like the Clayton Act, prohibits restraints of potential as well as actual competition, and the combination cannot escape condemnation under the Sherman Act because it took the form of a joint venture. The policy of the Clayton Act illuminates the general terms of the Sherman Act, and the facts which establish that the joint venture violates Section 7 of the Clayton Act establish that it also constitutes an unreasonable restraint of trade.

ARGUMENT

INTRODUCTION

A joint venture between two manufacturing companies for the purpose of entering a market in which neither has actively competed before may benefit or harm competition, and the harm, if any, may be substantial or insignificant depending upon the capabilities and prospects of the companies involved. At one extreme, if neither company can seriously consider entering the market alone, competition is obviously served by the combination. This would be the case if two small companies combined their resources in order to overcome substantial barriers to independent entry or to share risks or expenses manifestly too great to be borne by either

company alone. At the other extreme, if two large companies, each of which is capable of having a substantial competitive impact on a market, abandon serious consideration of separate entry in order to form a joint venture, competition would plainly be substantially lessened, for the addition of the joint venture to the market could not compensate for the loss of potential competition between the companies.

The latter example would, we submit, be prohibited by the Clayton and Sherman Acts for much the same reasons that, in many circumstances, a company actively selling in a market may not acquire a significant potential competitor which is likely to enter that market. The antitrust laws in general, and particularly Section 7 of the Clayton Act, condemn the destruction of "potential competition in a way later to make actual competition impossible * * *" *Aluminum Co. of America* v. *Federal Trade Commission,* 284 Fed. 401, 408 (C.A. 3), certiorari denied, 261 U.S. 616. In the case of the acquisition of a significant potential competitor by an active competitor, the potential competition is simply extinguished. In the case of a joint venture between two significant potential competitors, each of which might well have entered the market on its own, a single active competitor is substituted for two potential competitors so that the reasonable probability of substantial future competition is lost.

The loss of competition from a joint venture between two companies capable of entering the market separately, and independently likely to do so, results from the reasonable probability that, but for the joint venture, one of two alternatives would come to pass, either of which would furnish more competition than the joint venture. First, without the joint venture both companies might have become active competitors in the market. Second, without the joint venture one might have entered as an active competitor while the other would have had a significant impact on the market as a potential competitor, threatening entry whenever market conditions offered sufficient likelihood of profit. The presence of a potential entrant—waiting in the wings and capable of moving into the market—may be an indispensable source of protection for purchasers and ultimately the consuming public. Its readiness to enter the market whenever the existing manufacturers charge excessive prices, limit production, or fail to exploit economic opportunities (*e.g.*, to develop more efficient productive techniques) can act as a spur to insure the competitive vigor of those already in the market. "If economic superiorities of some kind are not possessed by the existing few, entry of new rivals is a continuing threat, likely to enforce behavior approaching the competitive norm." Weston, *The Role of Mergers in the Growth of Large Firms* (1953) 109.

In short, the harm to competition from a joint venture between two companies which are fully capable of, and actively considering, entering a market inde-

pendently is that it deprives an attractive market of the competitive benefits of having its full share of new competitors and potential competitors. It enables prospective entrants to act, prior to entry, to eliminate the threat of future competition between themselves for the indefinite future; for a joint manufacturing and sales venture generally involves an almost permanent dedication of resources and allegiance to the joint project. The companies combining may, in some cases, be so small and their prospects of adding significantly to competition in the market by independent entry may be so slight that the harm to competition is not substantial. But a joint venture between two companies, each of which would be a highly significant competitive factor in the market, will substantially lessen competition if there is a real likelihood that, without the joint venture, at least one would have entered the market independently and the other, at worst, would have remained a significant potential competitor and, at best, would have become an additional active competitor.[6] Competition is much

[6] This threat to competition is becoming increasingly real. Joint ventures are rapidly becoming a significant form of business association. In the chemical industry alone, 17 of the 54 leading corporations held interests, in 1958, in one or more joint subsidiaries. Comment, *Joint Subsidiaries and Section 7 of the Clayton Act*, 39 U. Det. L. J. 223, 224, citing Merrill Lynch, Pierce, Fenner & Smith, *Chemicals* (1958). Olin, for example, itself the outgrowth of a 1953 joint venture between Mathieson Chemical Corporation and Olin Industries, Inc. (PX 414, R. 1479), joined forces with Revere Copper & Brass, Inc. in forming the $250 million Ormet Corporation (and related subsidiaries) in 1956, and with Sun Oil Company, in establishing the

better served by the entry of one and the continuing presence of the other as a threatening potential competitor than by the entry of both as a single entity; and competition will be greatly benefited if both enter the market separately rather than jointly.

For these reasons we believe that the Clayton and Sherman Acts prohibit two companies from agreeing to enter a market as a single entity when each is fully capable of entering independently as a significant competitor and, in fact, is considering that course. This standard permits the use of a joint venture by two small and struggling companies neither of which could enter the market alone. It does not condemn a joint venture between two companies each of which could enter alone, if the loss of their competition would not be significant in view of their capabilities and the nature of the market. But it prohibits joint ventures which may substantially lessen competition because they substitute a joint undertaking for a real possibility either that two significant competitors will enter the market independently or that one will enter with the other remaining a potential entrant.

We believe that the government has met its burden of proof when it has shown that each of the companies involved in a joint venture was capable of entering the market, was independently considering that course, and would furnish a substantial increment to competition. That the government's

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$7 million SunOlin Chemical Company in 1958 (PX 414, R. 1480). Pennsalt, too, in 1954 formed the Solar Salt Company primarily in conjunction with Hooker (PX 414, R. 1481).

proof in the present case met this standard is established by the district court's findings of fact. Indeed, a detailed analysis of the probable consequences of the Penn-Olin joint venture furnishes forceful evidence of the probable injury to competition resulting from such a combination.

I

THE JOINT VENTURE BETWEEN PENNSALT AND OLIN VIOLATED SECTION 7 OF THE CLAYTON ACT

Section 7 of the Clayton Act (*supra*, p. 3) prohibits certain corporate acquisitions of the stock or assets of corporations engaged in interstate commerce if there is a reasonable probability that the result of the acquisition will be a substantial lessening of competition. The Penn-Olin joint venture is prohibited by the statute. It involves the type of acquisition of the stock or assets of corporations engaged in commerce which is prohibited by the statute (a question which the district court did not decide), and the requisite detriment to competition is established by the district court's findings of fact, which are amply supported by the record.

We agree with the district court that the issue as to substantial lessening of competition depends upon a comparison between the state of competition with Penn-Olin as an active competitor in the relevant market and what probably would have occurred without the joint venture. Applying this test and accepting the district court's findings of fact, we submit that the joint venture must be condemned. There is a reasonable probability that, if Pennsalt and Olin had

not formed Penn-Olin as a joint venture, either both companies would have entered the southeastern market or one would have entered while the other remained a significant potential competitor threatening entry whenever lack of competition in the market made entry desirable. Since, as we shall show, in either event the market would have enjoyed substantially more competition than with Penn-Olin alone, there is a reasonable probability that the acquisition will substantially lessen competition in the southeastern market.

A. THE FORMATION OF PENN-OLIN INVOLVED AN ACQUISITION OF STOCK OR ASSETS COVERED BY SECTION 7 OF THE CLAYTON ACT

The prohibitions of Section 7 of the Clayton Act, as amended in 1950, cover (1) the acquisition by a corporation engaged in interstate commerce of all or part of the stock or assets "of another corporation engaged also in [interstate] commerce" and (2) the acquisition by a corporation subject to the jurisdiction of the Federal Trade Commission of all or part of the assets "of one or more corporations engaged in [interstate] commerce." "Congress contemplated that the 1950 amendment would give § 7 a reach which would bring the entire range of corporate amalgamations, from pure stock acquisitions to pure assets acquisitions, within the scope of § 7" (*United States* v. *Philadelphia National Bank*, 374 U.S. 321, 342). The "corporate amalgamation" which the formation of Penn-Olin produced plainly was the kind of combination which, if it has the proscribed anti-competitive effects, Congress intended the amended Section 7 to reach.

A corporation is "engaged * * * in [interstate] commerce" within the meaning of Section 7 if, at the time of the acquisition challenged under that section, it is either conducting an interstate business or is intending or preparing to do so. Congress plainly did not intend an acquisition of a company, which was conceived and intended as an interstate firm, to escape the ban of Section 7 merely because, at the moment of acquisition the company itself had not yet produced or shipped any of its own goods. On the contrary, in view of the Congressional purpose in Section 7 to bar all mergers which posed any substantial threat to competition, the limitation of Section 7 to acquisitions of stock or assets of corporations "engaged * * * in [interstate] commerce" reflects only the Congressional intent that the section would not prevent corporations engaged in interstate commerce from acquiring wholly intrastate firms. This conclusion is strongly supported by the third paragraph of Section 7 which provides that the statute shall not prohibit a corporation engaged in commerce from forming subsidiary corporations under certain stated conditions. Since a subsidiary corporation cannot be actively engaged in interstate commerce at the moment of its formation, it is apparent that the acquisition of the stock of a subsidiary not actively engaged in commerce but conceived and intended as an interstate firm was thought to be within the prohibitions of the statute except where the stated conditions were met.

Penn-Olin plainly was "engaged" in interstate commerce within the meaning of Section 7 when Pennsalt

and Olin acquired its stock.[7] From its inception, Penn-Olin was intended by its organizers to engage in interstate commerce, and it immediately began to arrange for and conduct such business. Even prior to Penn-Olin's incorporation on February 25, 1960, pursuant to an agreement which Pennsalt and Olin had reached two weeks earlier (R. 1547), the latter companies had begun preparations for its functioning. Thus, they had initiated freight rate and site location studies and technological investigations (PX 189, 194, 205, R. 777, 785–787, 799–800). After they each acquired one share of Penn-Olin stock in March 1960,[8] they began sales development efforts, and so-

[7] The applicability of Section 7 to the formation of Penn-Olin may also be sustained on two other theories: (1) that Pennsalt and Olin, each engaged in interstate commerce, indirectly acquired the assets of the other through Penn-Olin when they transferred a part of their assets to the latter and acquired part of its stock; (2) that Penn-Olin itself acquired the assets of corporations engaged in interstate commerce, *i.e.*, assets of Pennsalt and Olin.

[8] Pennsalt and Olin each ultimately acquired a total of 500 shares of Penn-Olin stock as follows:

1 share on March 22, 1960 [PX 317, R. 901]
75 shares on November 17, 1960 [PX 320, R. 902]
200 shares on January 3, 1961 [PX 322, R. 903]
100 shares on February 16, 1961 [PX 323, R. 904]
124 shares on March 22, 1961 [PX 324, R. 905].

Only one share apiece was physically issued to Pennsalt and Olin (see PX 295, R. 880). The issuance of certificates for the remainder of the stock was delayed by the secretary of Penn-Olin because of some problems in connection with the transfer of land from Pennsalt to the subsidiary and the institution of this action (PX 396, 405, R. 1158–1161, 1258–1261). However, Pennsalt and Olin considered all the shares as "having been purchased" as of the date payment therefor was deposited in Penn-Olin's bank account (see PX 311, 312, 396, R. 891–892, 1159–1160).

licited sales (PX 226, 232, R. 815, 819–820, 823–825; DX 45, R. 1537–1539). The manager of Olin's chemical division testified that, in the fall of 1960, Olin was soliciting sales of sodium chlorate in Olin's name, but "with the recognition that at the initiation of Penn-Olin production the supply of chlorate under the contracts it was consummating would initiate from Penn-Olin's production" (PX 408, R. 1384). During the same period, arrangements were made with Pennsalt and Ampot for Penn-Olin, until it began producing, to purchase sodium chlorate from them for resale (PX 269, p. 1, PX 398, pp. 12–15 (unprinted); PX 265, R. 857–858). Penn-Olin began to make actual deliveries under this arrangement on January 1, 1961, pursuant to contracts executed around December 1960 (PX 286, 287, 336, 337, 338, 408, R. 866–869, 912–915, 1379–1384). Moreover, both Pennsalt and Olin contemplated that as soon as possible Penn-Olin would begin to service Pennsalt's existing eastern customers (PX 424, R. 1492; PX398, pp. 29–30, 60–61, PX 408, pp. 195–196 (unprinted)).

Thus, long before Penn-Olin began its own production, sale and delivery of sodium chlorate, it had begun its sales activities and had made arrangements to purchase the chemical from other producers for resale. In any realistic sense, therefore, Penn-Olin was "engaged" in interstate commerce when Pennsalt and Olin acquired its stock, even though at that time its own production and interstate distribution of sodium chlorate was just getting under way. To permit the combination of Pennsalt and Olin in this new company to escape the prohibitions of Section 7 because

of the claim that the new company was not yet actually "engaged" in commerce when its two organizers acquired their interests would elevate form over substance, and would ignore the Congressional purpose to "bring the entire range of corporate amalgamations * * * within the scope of § 7" (*Philadelphia Bank, supra*). As the court explained in *Aluminum Co. of America* v. *Federal Trade Commission*, 284 Fed. 401, 407 (C.A. 3), certiorari denied, 261 U.S. 616, in rejecting a similar challenge to a Commission determination that Alcoa's acquisition of stock in a new corporation formed to take over part of the existing business of another company violated Section 7: "Assuming for a moment that at the time of the stock acquisition the new corporation had not become engaged in commerce * * *, we doubt that the Aluminum Company could be saved from violating [Section 7] in view of the next fact that by the terms of the arrangement the Aluminum Company at once put the new corporation into commerce * * *."[9] The *Alcoa* case also indicates that Section 7 applies because Penn-Olin was intended to take over Pennsalt's existing interstate operations of selling sodium chlorate to eastern customers. Cf. also, *United States* v. *New England Fish Exchange*, 258 Fed. 732, 743–744, 746 (D. Mass.).

[9] "Certainly, it is logical to conclude that any corporation organized for commercial purposes and involved in the issuance of stock is 'engaged in commerce' even though it may not have begun manufacturing operations." Comment, *Joint Subsidiaries and Section 7 of the Clayton Act*, 39 U. Det. L. J. 223, 228.

B. THE PENN-OLIN JOINT VENTURE MAY SUBSTANTIALLY LESSEN COMPETITION IN THE SOUTHEASTERN MARKET FOR SODIUM CHLORATE

There is in the present case no dispute about the product and geographic markets in which the effect of the joint venture between Pennsalt and Olin is to be measured. The district court found and both parties agreed "that there is a relevant southeastern market in sodium chlorate" (R. 1555). The sole question as to effect on competition is whether the government met its burden of proving that the effect of the joint venture, in this product and geographic market, may be substantially to lessen competition. It is our contention that the government's evidence and the trial court's findings establish a reasonable probability that, but for the joint venture, either both Pennsalt and Olin or one of them would have entered the market, and that if only one had entered, the other would have remained a significant potential competitor. Since, as we shall show, this would have resulted in substantially more competition in the market than there will be with the Penn-Olin joint venture, the effect of the joint venture "may be substantially to lessen competition."

The district court did *not* find that the government had failed to show a probability that either one or both of the companies would have entered the market and that, if only one had entered, the other would have remained a significant potential competitor. The court did not resolve this question (see R. 1575) because it concluded that the government could not show a substantial lessening of competition by establishing

"that one company would have decided to build [a plant in the southeast] while the other continued to ponder" (R. 1575–1576).

The trial court held that, to establish that the joint venture may substantially lessen competition, the government had the burden of showing a reasonable probability that "*both* companies would have entered the market as individual competitors if Penn-Olin had not been formed" (R. 1575, emphasis in original). We submit that this holding is erroneous as a matter of law. A substantial lessening of competition could—and in this case would—result from the joint venture even if, without it, only one of the companies would have entered the market while, in the words of the district court, "the other continued to ponder," threatening entry whenever market conditions offered a profit.

1. There Is A Reasonable Probability That If Pennsalt And Olin Had Not Formed Penn-Olin As A Joint Venture, Both Would Have Entered The Southeastern Market Or One Would Have Entered While The Other Remained A Significant Potential Competitor, Threatening Entry Whenever Market Conditions Made Entry Desirable

As we have indicated, we do not believe the district court made a contrary finding as to this point. Indeed, as we shall show, its findings on subordinate facts establish a reasonable probability that, either both companies would have entered the southeastern market or, at least, "one company would have decided

to build while the other continued to ponder," posing a substantial threat of future competition to those companies already active in the southeast.

a. Pennsalt and Olin Were Each Fully Capable Of Entering And Independently Likely To Enter The Sodium Chlorate Market In The Southeast

The district court found that "Pennsalt and Olin each possessed the resources and general capability needed to build its own plant in the southeast and to compete with Hooker and AmPot in that market" (R. 1574). This finding is compelled by the record, as the district court's opinion demonstrates (R. 1574):

> At the time when the joint venture was agreed upon Pennsalt and Olin each had an extensive background in sodium chlorate. Pennsalt had years of experience in manufacturing and selling it. Although Olin had never been a commercial manufacturer, it possessed a substantially developed manufacturing technique of its own, and also had available to it a process developed by Vickers-Krebs with whom it had been negotiating to construct a plant. Olin had contacts among the southeastern pulp and paper mills which Pennsalt lacked, but Pennsalt's own estimates indicate that in a reasonable time it would develop adequate business to support a plant if it decided to build. A suitable location for a plant was available to each company—Calvert City, Kentucky, for Pennsalt, and the TVA area around Chattanooga, Tennessee, for Olin. The financing required would not have been a problem for either company. * * *

Pennsalt and Olin were acutely aware that economic conditions in the southeastern sodium chlorate industry invited entry. The highly concentrated market contained the plants of only two producers; neither of which had been competing very aggressively (see *supra*, pp. 8–9): The market had been growing rapidly, and the parties forecasts were that the growth would continue. Both Pennsalt and Olin had extensive experience with paper mills, the area of greatest growth—Pennsalt in the west, servicing the mills it had licensed under the Mathieson process, and Olin in the southeast, acting as Pennsalt's sales agent (see *supra*, pp. 5–6).

Each company concluded that it could operate profitably in this market. For example, Olin estimated it could obtain a 13.1 percent return on gross investment after taxes from a 15,000 ton sodium chlorate plant at Chattanooga, Tennessee (see PX 32, 33, R. 570, 576). This compared very favorably with Olin's return of 6.4 percent on gross investment in its total chemical operations and its return of 8.3 percent in its industrial chemical division (PX 428, R. 1499). Am Pot had constructed its southeastern plant anticipating only an 8 percent return after taxes on total capital investment (PX 415, R. 1484). Much the same is true of Pennsalt. Its anticipated return on a plant in the southeast was, under several of its plans, highly attractive (see *supra*, pp. 10, 12, 13) and more than comparable to the return it was realizing from its overall chemical activities (PX 151, R. 725).

Each company had compelling business motives for expanding into the southeastern market. For Pennsalt, geographic expansion into the southeast was necessary if it was to keep pace with AmPot and Hooker, each of which had two plants in operation by 1959 (see *supra*, p. 7).[10] Olin, on the other hand, was motivated to become a producer of the chemical by "the fact that [it was] already buying and using a fair quantity for the production of sodium chlorite and that [it was] promoting the Mathieson process for the generation of chlorine dioxide which uses sodium chlorate" (PX 406, R. 1267). Olin had expended much time, effort, and resources in granting free licenses and servicing under the Mathieson pulp bleaching process. It felt that it "must get a return on the effort put into chlorine dioxide generation installations" (PX 254, R. 846); and the only way of doing so was to commence with the production and marketing of sodium chlorate. In addition, Olin's internal consumption of sodium chlorate assured that production of the chemical would be a sound business move.

While we do not believe any proof in addition to that discussed above was necessary to establish the requisite reasonable probability of the parents' in-

[10] Pennsalt's concern that it was lagging behind the field is reflected in its president's comment that Hooker's expansion of its southeastern facilities, in 1956, "makes us look kind of silly when we consider the number of times we have evaluated unsuccessfully the installation of a chlorate plant in the southeast. I think we should plan to review this matter once again * * *" (PX 71, R. 636).

dependent entry, there is further record support for that conclusion. Both Pennsalt and Olin had for some time been carefully considering entering the southeastern market as independent producers. The district court found that "[t]he interest which Pennsalt had in building a sodium chlorate plant in the southeast was of long standing", and that "Olin's interest in manufacturing and selling sodium chlorate in the southeast for its own account likewise antedated the joint venture by a number of years" (R. 1572).

By the mid-1950's, at the latest, southeastern production of sodium chlorate was more than just another project vying for the companies' excess resources; on the contrary, it had become a permanent part of the future expansion plans of both Pennsalt and Olin (see *supra*, pp. 9–16). Both had intensively analyzed the economic situation in the southeast, and both had received favorable reports. On the basis of those reports, both were determined to enter the market. The principal question facing their managements was whether to do so in concert or separately. That question, as the district court found (R. 1573, and fn. 22), had not been finally resolved by either company until the formation of Penn-Olin; their interest in unilateral projects continued right up to the end (see *supra*, pp. 13–16).

For example, in November 1958 tentative approval was reached at a Pennsalt management meeting for a plan to build a 30,000-ton sodium chlorate plant at Calvert City, Kentucky (R. 1588). The plan was never rejected prior to the formation of Penn-Olin; it was put to one side pending action on the joint

venture (see R. 1573–1574, fn. 22). And, both in April and October 1959, Olin's chemical division recommended that Olin independently construct a 15,000-ton sodium chlorate plant in the southeast. "Olin's corporate staff did not disapprove or otherwise act upon the October 1959 report prior to the joint venture decision of 1960" (R. 1589).

Accordingly, there is every reason to conclude that Pennsalt and Olin were each capable of entering and independently likely to enter the southeastern market. Indeed, one or both might well have entered the market by 1960 but for the fact that for several years they had been considering and discussing a joint venture. Internal memoranda make clear that as early as 1957 Pennsalt was studying the possibility of a joint venture "with a partner such as Olin Mathieson * * *" (PX 74, R. 640). In early 1959 it was decided that independent entry should not be considered further unless negotiations with Olin fell through (*supra*, p. 13). Much the same was, of course, true of Olin. Olin's principal negotiator, vice-president John Logan, said (PX 408, R. 1395):

> From the first conversations with Mr. Shanaman [a Pennsalt vice-president] the possibility of either of the parties producing independently or both of the parties producing jointly were alternates that were discussed constantly up until the time of the final decision.

After 1958 independent entry was further discouraged by the parties' "production agreement" (*supra*, p. 17) which required each company to inform the other before making any move toward separate entry.

Each company, in fact, kept the other advised pursuant to this agreement of its plans for separate entry.[11]

In sum, prior to the formation of Penn-Olin, there was a reasonable probability as to each parent that, but for the prospect of the joint venture, it would have entered the market alone. Each was capable of independently entering the market; each had good business reasons for doing so; economic conditions were favorable; and each had put to one side a concrete plan for independent construction of a plant, so as to appraise a proposed joint undertaking once more. The principal factor holding up independent entry was the possibility of a joint venture, and not doubts as to the feasibility of going it alone.[12]

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[11] For example, Pennsalt notified Olin of its ammonium perchlorate-sodium chlorate plans (PX 111, R. 700; see PX 154, R. 726–727); and Olin informed Pennsalt of its plans, during 1959, for an independent plant at Chattanooga (R. 218–219; see PX 168, R. 731). Decisions on both proposals were ultimately postponed, though not finally rejected, after the parties met and evaluated their independent prospects against chances for a joint venture (see *supra*, pp. 13, 15–16).

[12] Indeed, even after the joint subsidiary had been incorporated there was a period during which the parents moved back toward independent entry. In August 1960, Olin reappraised the Penn-Olin project and decided to reject it because, among other things, the expected rate of return (between 7.1 and 9.3 percent) was too low, and the project provided little opportunity for future expansion (PX 245, R. 836–837). At that moment the prospects for independent entry by both Pennsalt and Olin were extremely favorable. The compelling considerations urging them to begin sodium chlorate production in the southeast were still existent; a joint undertaking was less likely than at any previous time; and each possessed a concrete, practical plan, only about one year old, under which it could have entered the market separately—Pennsalt, immediately; Olin after giving Pennsalt the opportunity to

b. There Is No Reason To Believe That The Entry Of Either Pennsalt Or Olin Would Have Caused The Other To Abandon Its Plans To Enter The Market, If Not Immediately, Whenever Lack Of Effective Competition Or Other Market Conditions Offered The Prospect Of Profit

Neither Pennsalt's nor Olin's plans and hopes of entering the southeast market were conditioned upon being the first to enter. Both companies had canvassed the sodium chlorate industry for a decade; for the last five years their analyses were constant and comprehensive, and had resulted in the formulation of specific plans for independent entry into the southeastern market (see *supra*, pp. 9–16). During this period, each was well aware of the other's interest in entering the market on its own; in fact, they had agreed that neither would make any independent moves in the field without first informing the other (PX 111, R. 700). Yet neither company gave any indication that it contemplated abandoning its plans for entry if the other entered first. Moreover, the specific plans of each for independent entry were not deterred by the likely possibility that, after its entry, the other would also enter the market.

Additional objective evidence establishes that the prior entry of one of the two would not have rendered the market substantially less tempting to the other. The parties' construction of the joint Penn-

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enter first, which Olin felt it would owe Pennsalt as a "moral obligation" (PX 245, R. 836). Again, these prospects were destroyed by resuscitation of the joint venture (see PX 251, R. 840–842).

Olin plant with a 26,500-ton capacity (R. 1547) shows that they believed a market existed in the southeast for at least that much additional sodium chlorate. In these circumstances, construction by the first entrant of a 15,000-ton plant, as was likely (see *supra*, pp. 10, 15), presumably would not have dissuaded the other from entering on its own. Even after Penn-Olin had announced its intention of entering the market, Pittsburgh Plate Glass decided to enter with a 15,000-ton plant (R. 1569) "because an appraisal of market conditions convinced it that regardless of the outcome of the present litigation, additional sodium chlorate capacity was needed in the southeast and that after its plant was built, it would be able to obtain a fair share of the market for itself" (R. 1570).

The district court stated that (R. 1576):

> * * * Pennsalt and Olin were each hesitant to build a plant of its own in a market occupied by two competitors. Whether the imminent presence of a third competitor might have made the prospect more or less appealing cannot be foretold. Neither company had ever faced the problem. The record affords no clue as to what action might have been taken if the problem had arisen.

The court ruled that "[i]t is therefore impossible to conclude that as a matter of reasonable probability *both* Pennsalt and Olin would have built plants in the southeast if Penn-Olin had not been created" (R. 1576, emphasis in original). Whatever may be true of the probabilities that *both* Pennsalt and Olin would have built plants in the immediate future, there is every reason to conclude that, as a matter of reasonable probability, at least one would have built

and, if only one, the other would have continued to be a highly significant potential competitor. For, as we have shown, the evidence as to the capabilities of the parties, the state of the market, the intention of each to enter despite knowledge that independent entry might well be followed by entry of the other, and the absence of any indication of an intention to abandon long-established plans for entry in the likely event of being beaten to the punch—all support the conclusion that the interest of each in entering the southeast would have survived the prior entrance of the other.

2. Penn-Olin's Entry Into The Southeastern Market Will Furnish Substantially Less Competition Than Either (a) The Entry Of Both Pennsalt And Olin Or (b) The Entry Of One Of These With The Other Remaining A Significant Potential Competitor

a. The district court assumed, without deciding, that the presence of both Pennsalt and Olin as active competitors in the southeastern market for sodium chlorate would result in more competition than will be furnished by the Penn-Olin joint venture. The southeastern market had, at the time of the joint venture, only three competing sellers. Hooker and AmPot, which alone had plants in the area, together had 91 percent of the market. Pennsalt, selling in large part through Olin, had the remaining 9 percent of the sales. This was, without question, a market in which competition would be greatly benefited by the addition of the plants of two able and vigorous competitors, rather than merely one.

Both Pennsalt and Olin showed promise of becoming such competitors. They were of a size which compared favorably with that of Hooker and AmPot. In 1960, Pennsalt's sales amounted to over $90 million; Olin's were $690 million; Hooker's were $150 million; and AmPot's were less than $51 million. As we have spelled out in detail above, both Pennsalt and Olin possessed every type of resource, capability, and knowledge required to compete successfully in the southeast. Each was, moreover, capable of building, and had planned to build, a facility with a capacity of at least 15,000 tons (see PX 32, 82, R. 565, 643), an amount equal to AmPot's 1960 capacity in its southeastern plant (R. 1551) and sufficient to serve a very large percentage of the southeastern market.

What is perhaps most important, both Pennsalt and Olin promised to become vigorous competitors in this market. Some of Pennsalt's officials, aware of the sluggish state of the industry and the unimaginative approach to technological development exhibited by the incumbents, believed that efforts "to expand existing uses or to develop new uses * * * should be very rewarding" (PX 146, R. 719). They felt that Pennsalt, if it entered on its own, could "take leadership" in aggressively promoting sales and technological development of sodium chlorate (PX 146, R. 719). Olin's initiative had already been demonstrated by its extensive campaign to induce acceptance of its Mathieson bleaching process by the paper industry (see *supra*, pp. 4, 5, 15). As late as 1960, in view of the impending production of sodium

chlorate by Penn-Olin, Olin considered it imperative that "we have installation of our chlorate dioxide process in as many mills as possible and that we do everything within our power to retain and enhance the general acceptance of our process by the paper industry" (PX 218, R. 811). Surely no lesser effort could be expected from Olin acting solely on its own, rather than for the joint benefit of both parents.

In these circumstances, the substantiality of the additional competition that would result from the presence of both Pennsalt and Olin as active competitors with plants in the southeastern market is plain, and the substitution of a single joint venture for these two competitors would have an "inherently anticompetitive tendency." *United States* v. *Philadelphia National Bank*, 374 U.S. 321, 366.

b. The district court did not question the significance of the competitive role that either Pennsalt or Olin could provide. It found that "when the joint venture agreement was signed, Pennsalt and Olin each possessed the resources and general capability needed to build its own plant in the southeast and to compete with Hooker and AmPot in that market," and it added that each could have competed profitably (R. 1574). The court held, however, that the government had failed to prove that both Pennsalt and Olin would have entered the market, "[s]o that the best possible postulate on which the Government's case can be based is that one company would have decided to build while the other continued to ponder" (R. 1575–1576). In the court's view, this de-

feated the government's case, for there was every reason to suppose that Penn-Olin would be as effective a competitor as either Pennsalt or Olin alone. In thus concluding that the government could not show a substantial lessening of competition unless it proved a reasonable probability that *both* Pennsalt and Olin would have entered the market, the district court erred; it wholly ignored the substantial lessening of competition that results from the elimination of the potential competition of the firm which did not enter immediately but "continued to ponder," threatening entry whenever competitive conditions made this desirable.

"Potential competition, either as a supplement to actual competition or as a substitute for it, may restrain producers from overcharging those to whom they sell or underpaying those from whom they buy. * * * [I]nsofar as the threat survives, [it] may compensate in part for the imperfection characteristic of actual competition in the great majority of competitive markets."[13] The importance of potential competition depends, of course, upon the capability and availability of the potential competitor and upon the amount of competition furnished by the companies already active in the market and other potential competitors. But there can be little question as to the

[13] Wilcox, *Competition and Monopoly in American Industry*, T.N.E.C. Monograph No. 21 (1940) 7–8.

substantiality of the benefit to competition of having a capable, imaginative, and aggressive competitor waiting in the wings to enter an oligopolistic market, containing only three active companies (and few similarly capable and interested potential competitors), whenever the level of prices or production or innovation made entry desirable. This is the situation in the present case. If the joint venture had not been available to Pennsalt and Olin, there is a reasonable probability that one would have entered the market in place of Penn-Olin and the other would have, at the very least, remained a highly significant potential competitor in a market that badly needed such competition.

The importance of the elimination of this potential competition is plain. "The basic characteristic of effective competition in the economic sense is that no one seller, and no group of sellers acting in concert, has the power to choose its level of profits by giving less and charging more. Where there is workable competition, rival sellers, whether existing competitors or new or potential entrants into the field, would keep this power in check by offering or threatening to offer effective inducements * * *."[14] In the pres-

[14] *Report of the Attorney General's Nat'l Committee to Study the Antitrust Laws* (1955) 320; see *Proctor & Gamble Co.*, Docket No. 6901, decided by the Federal Trade Commission on November 26, 1963 (mimeo opinion), p. 61.

ent case a very small group of sellers has the power to choose its level of profits in the southeastern market for sodium chlorate. The nature of oligopolistic competition is such that there is little incentive for any of these to compete in price or innovation, for each firm can anticipate that its competitive efforts will quickly be met by offsetting actions of its rivals, perhaps leaving all of them with less profits than prior to the round of competition. There is every likelihood that the very few competitors in the market will quickly conclude that an absence of competition is to the benefit of each.

In this situation workable competition depends almost entirely upon capable and readily available potential entrants to keep the power of the active companies in check by threatening to enter the market and thereby reduce the market shares and profits of all of the active companies. While higher profits through higher prices and limited production is a readily achievable end of the companies selling in a tightly oligopolistic market, such companies realize that the same factors provide an immediate incentive for entry by potential competitors. While price-cutting to increase one's market share may be considered ungentlemanly conduct by the three companies actively selling in a market, the maintenance of prices at a low enough level to avoid inviting the entry of a potential competitor is an understood necessity.

If either Pennsalt or Olin constructed a plant in the southeastern market instead of Penn-Olin (which was probable but for the joint venture), the other would, at the very least, have remained a potential

competitor of the most threatening kind. The company remaining behind would, as we have shown, have every requisite capability of resources, know-how, and good will. Both Pennsalt and Olin were aggressive, interested in entry, and imaginative. There were few other companies of similar capabilities and interest which could also provide a useful competitive threat to those selling in the southeast. An increase in profits for the active companies would have been reflected immediately in either Pennsalt's or Olin's calculation of expected return on an investment in the market. Since both Pennsalt and Olin repeatedly recalculated their prospective returns from a plant in the southeast and postponed immediate entry only in the hope of finding higher returns, the active companies would have had to consider price changes and production limitation in light of the immediate effect of these on an eager potential entrant.

Beyond this, if Olin had entered the market as an active competitor, by building its own plant, Pennsalt would have remained an active as well as a potential competitive force in the southeastern market. Pennsalt had demonstrated its ability to make sales in the southeast even from its plant in the northwest. Part of its sales in the southeast were attributable to Olin's efforts as sales agent for most of Pennsalt's sales to pulp and paper mills there. But, without the assistance of Olin, Pennsalt had captured seven percent of the admittedly much smaller southeastern market for sales of sodium chlorate to users other than pulp and paper mills (R. 1561), and it can be fairly as-

sumed that it would have retained at least a somewhat comparable share of sales to pulp and paper manufacturers even if it did not decide to build another plant in the market.

It is, of course, impossible to demonstrate the precise effects upon prices and production of the elimination of either Pennsalt or Olin as a potential competitor waiting to enter the sodium chlorate market in the southeast. But the record does show, at least in part, how the joint venture affected competition in product and sales innovation in the market. In aid of its independent efforts to enter the market, Olin had undertaken in 1956 to develop a cheaper method of producing sodium chlorate (PX 406, R. 1279). Early in 1959, its experiments showed some "very promising results" (PX 33, R. 573); and by the end of that year Olin felt it had an "excellent chance of * * * producing sodium chlorate at a cost lower than whatever the literature studies revealed * * *" (PX 406, R. 1279). After it had been decided that Olin was to enter a joint venture and was to have no responsibility for Penn-Olin's production, Olin canceled any further experiments in this field (see PX 401, 406, R. 1220–1222, 1277).

Pennsalt likewise had been running tests to find new uses for sodium chlorate in textile bleaching. It began when plans for the joint venture already were in the works, but proceeded cautiously because its sales manager felt that "if [Olin] is going to have complete control of sales, maybe there isn't much

point in our wasting time * * *" (PX 215, R. 809). He believed that Pennsalt should not use its resources to "promot[e] a process that Olin Mathieson is going to go out and sell" (PX 399, R. 1190). As of September 1961 the laboratory work was continuing, but Pennsalt was "certainly not going to pursue it too aggressively until the whole thing kind of settles down, until we kind of find out exactly where we stand" (PX 399, R. 1190). Thereafter, Olin was designated as sole sales agent for the joint subsidiary.

There is no reason to suppose that either of these creative efforts would have been discontinued or slowed down had not Pennsalt and Olin been contemplating a joint venture. On the contrary, the probability is that even if one of the companies had not entered the market immediately, it would have continued to pursue its experiments in the hope of obtaining a capability which would enable it to enter the market profitably at a future date. Beyond this, the active competitors would have been called upon to respond with competitive innovations of their own. All this was eliminated by the joint venture.

In sum, even if it be assumed that only either Pennsalt or Olin would have entered the market with a local plant and the other would have remained a potential competitor, the loss to competition through the joint venture's elimination of the potential competitor is plainly substantial. The potential competition of a company such as Pennsalt or Olin would

significantly limit the control of prices and production shared by the three companies with plants in the southeast. The threat of production, sales, or product innovations by potential competitors of the ability of Pennsalt and Olin would serve as a constant spur to similar development by those in the market. The joint venture ended these substantial elements of competition, as well as the real chance that both Pennsalt and Olin would have consummated the plans they had repeatedly considered to build separate plants. For these reasons, the joint venture may result in a substantial lessening of competition in the market in the southeast.

Finally, even if it were relevant, the record is barren of any indication of benefits to competition from the joint venture that could compensate for and justify the lessening of competition which, as a matter of reasonable probability, the joint venture will cause. We therefore submit that the acquisition is forbidden by Section 7 of the Clayton Act.

II

THE JOINT FORMATION OF PENN-OLIN WAS A COMBINATION IN RESTRAINT OF TRADE IN SODIUM CHLORATE IN THE SOUTHEASTERN UNITED STATES, IN VIOLATION OF SECTION 1 OF THE SHERMAN ACT

The district court, concluding that the formation of Penn-Olin did not violate the Clayton Act, did not consider the further question whether it transgressed the Sherman Act. If this Court holds that the joint venture was an offense under Section 7, it need not

reach the Sherman Act issue. However, if the Court were to conclude that the transaction did not come within Section 7 (see *supra*, pp. 29–33), then the Sherman Act issue would be presented for decision.

Although the 1950 amendments to the Clayton Act promulgated a "standard of illegality stricter than that imposed by the Sherman Act" and were intended to arrest restraints of trade "in their incipiency and well before they have attained such effects as would justify a Sherman Act proceeding," [15] we believe that the concerted action involved in the present case violated the Sherman Act as well as the Clayton Act because of the harm to competition discussed above.

First, the Sherman Act, like the Clayton Act, outlaws restraints of potential as well as of actual competition. See *United States* v. *Paramount Pictures, Inc.*, 334 U.S. 131, 150–153; *United States* v. *Griffith*, 334 U.S. 100, 107; *United States* v. *Reading Co.*, 226 U.S. 324, 351, 369–371; *United States* v. *United Shoe Machinery Corp.*, 247 U.S. 32, 53. "[N]either the letter of the statute [Sherman Act] nor its purpose distinguishes between strangling a commerce which has been born and preventing the birth of a commerce which does not exist," *United States* v. *Patterson*, 59 Fed. 280, 283 (D. Mass.), for "so far as concerns the public interest, it can make no difference whether an existing competition is put an end to, or whether prospective competition is prevented," Judge Learned Hand in *United States* v. *Aluminum Co. of America*, 148 F. 2d 416, 429 (C.A. 2).

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[15] S. Rep. No. 1775, 81st Cong., 2d Sess. 4–5; see *Brown Shoe Co.* v. *United States*, 370 U.S. 294, 319, fn. 33.

Nor does the organization of the combination between Pennsalt and Olin in the form of a joint venture in any way limit the applicability of the Sherman Act. In *Timken Roller Bearing Co.* v. *United States*, 341 U.S. 593, the Court held that British Timken, American Timken, and their jointly owned subsidiary, French Timken, had unlawfully agreed to allocate trade territories. Defendants argued that the restraints were "ancillary" to a joint venture between American Timken and one Dewar, the major stockholder of British Timken. This Court noted, first, that the district court had found that the parties' dominant purpose was to restrain trade, but continued:

> Regardless of this, however, appellant's argument must be rejected. * * * Nor do we find any support in reason or authority for the proposition that agreements between legally separate persons and companies to suppress competition among themselves and others can be justified by labelling the project a "joint venture". Perhaps every agreement and combination to restrain trade could be so labeled. [341 U.S. at 598.]

See also, *United States* v. *Imperial Chemical Industries*, 100 F. Supp. 504, 592–593 (S.D. N.Y.); *United States* v. *Minnesota Mining and Mfg. Co.*, 92 F. Supp. 947, 958–959 (D. Mass.); *United States* v. *National Lead Co.*, 63 F. Supp. 513, 524, 530 (S.D. N.Y.), affirmed, 332 U.S. 319.

Second, the fact that an acquisition would violate the substantive prohibitions of Section 7 of the Clayton Act, if the jurisdictional prerequisite had been

satisfied, should be given great weight in determining whether it amounts to an unreasonable restraint of trade in violation of the Sherman Act. As this Court stated in *United States* v. *Columbia Steel Co.*, 334 U.S. 495, 507, fn. 7:

> It must be assumed * * * that the public policy announced by § 7 of the Clayton Act is to be taken into consideration in determining whether the acquisition of assets of Consolidated by United States Steel with the same economic results as the purchase of the stock violates the prohibitions of the Sherman Act against unreasonable restraints.

It is particularly appropriate that the more explicit policy of the Clayton Act be used to illuminate the general terms of the Sherman Act in situations where the former statute is indisputably applicable to cases indistinguishable in anti-competitive consequences. Thus, in *Northern Pac. Ry. Co.* v. *United States*, 356 U.S. 1, tying agreements which could not be reached under the limited enumeration of "commodities" in Section 3 of the Clayton Act were held to violate Section 1 of the Sherman Act, although the vendor did not possess the "monopoly power" or "dominance" over the tying product which had previously been thought necessary for a Sherman Act violation. 356 U.S. at 10, 11. Compare *Times-Picayune Pub. Co.* v. *United States*, 345 U.S. 594, 608–611. Similarly, in *Federal Trade Commission* v. *Motion Picture Adv. Service Co.*, 344 U.S. 392, this Court appears to have absorbed the policy of Section 3 of the Clayton Act into the Sherman Act (and thereby

into Section 5 of the Federal Trade Commission Act) to condemn exclusive dealing contracts in a situation where the more specific provisions of the Clayton Act were inapplicable solely because of the nature of the contracts. 344 U.S. at 397. The quantity of business affected in the *Motion Picture* case was substantially less than that in *Standard Oil Co.* v. *United States*, 337 U.S. 293, previously the leading decision under the Sherman Act relating to exclusive dealing (344 U.S. at 401–403, dissenting opinion).

Third, the same facts which compel the conclusion that the joint venture had the anticompetitive effect proscribed by Section 7, also condemn the arrangement as a combination "in restraint of trade" under Section 1 of the Sherman Act. As we have shown *supra*, pp. 35–44, the parents' capability to enter the market independently, considered along with the favorable economic conditions therein and each company's long sustained interest in entering the market on its own, established a high degree of probability that, but for the joint venture, either both would have entered the market or, at worst, one would have done so with the other remaining a highly significant potential competitor. The loss to competition in either event is plain, immediate, and substantial; the restraint of trade was full-grown, eliminating at once a highly important competitive force in a market wholly controlled by a very small number of competitors. This is thus not a case such as only the Clayton Act can reach, involving restraints caught "in their incipiency

and well before they have attained such effects as would justify a Sherman Act proceeding" (S. Rep. No. 1775, 81st Cong., 2d Sess. 4–5).

CONCLUSION

The judgment of the district court should be reversed, and the case should be remanded for entry of an appropriate decree.

Respectfully submitted.

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MARCH 1964.

APPENDIX

PX 1–375, inclusive, were offered into evidence at R. 30–39.[1] See R. 24. They were received by the court at R. 62.

PX 376 was offered and received into evidence at R. 61.

The parts of PX 377–411 which have been printed were offered into evidence at R. 44–59, and were received at R. 62.

The unprinted parts of PX 398, pp. 12–15, 29–30, 60–61, PX 400, p. 146, PX 408, pp. 195–196, referred to in the brief, were offered into evidence at R. 53, 54, and 57, respectively. They were received at R. 62.

PX 412–414 were offered and received into evidence at R. 62–66.

PX 415 was offered and received into evidence at R. 194–199.

PX 416–428, inclusive, were offered into evidence at R. 418. They were received at Tr. 824. See Tr. 795, 844.

DX 45 was offered into evidence at R. 418, and was received at Tr. 824.

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[1] The printed record (R. 38) lists PX 325 twice and omits PX 327. The second listing (Penn-Olin Bank Statement 6–61) should be PX 327. See Tr. 154.

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No. 503

IN THE

Supreme Court of the United States

OCTOBER TERM, 1963

UNITED STATES OF AMERICA,
Appellant,

v.

PENN-OLIN CHEMICAL COMPANY, *et al.*,
Appellees.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

BRIEF FOR APPELLEES

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April 15, 1964

INDEX

	PAGE
Questions presented	1
Statement	2
Competition before Penn-Olin	3
The background and formation of Penn-Olin	4
The increase in competition since Penn-Olin	6
The decision of the district court	8
Summary of Argument	8
Argument:	
I. The formation of Penn-Olin will not lessen competition in the southeastern sodium chlorate market	10
1. It is not reasonably probable that Pennsalt and Olin would both have entered the market if Penn-Olin had not been formed	12
2. There is no evidence to show a reasonable probability that, if either Olin or Pennsalt had entered the market, the other would have remained a significant potential competitor	17
3. There is no evidence that the entry into the market of either Pennsalt or Olin alone would have resulted in greater competition than was produced by Penn-Olin	18
II. Section 7 of the Clayton Act is not applicable to the creation of a new enterprise	23
III. The formation of Penn-Olin did not violate Section 1 of the Sherman Act	26
Conclusion	28
Appendix	29

TABLE OF CITATIONS

PAGE

STATUTES:

Clayton Act, § 7, 38 STAT. 731 (1914), as amended, 15 U. S. C. § 18 (1958) ..... Passim

Federal Trade Commission Act, § 5(a), 38 STAT. 719 (1914), as amended, 15 U. S. C. § 45(a) (1958) 27

Sherman Act, § 1, 26 STAT. 209 (1890), as amended, 15 U. S. C. § 1 (1958) 9, 10, 26, 27

DECISIONS:

Aluminum Co. of America v. *FTC*, 284 Fed. 401 (3d Cir. 1922), *cert. denied*, 261 U. S. 616 (1923) 24

Brown Shoe Co. v. *United States*, 370 U. S. 294 (1962) 10, 21, 23, 24, 26

FTC v. *Motion Picture Advertising Serv. Co.*, 344 U. S. 392 (1953) 27

FTC v. *Western Meat Co.*, 272 U. S. 554 (1926) .. 24

Northern Pac. Ry. v. *United States*, 356 U. S. 1 (1958) 27

United States v. *Columbia Steel Co.*, 334 U. S. 495 (1948) 27

United States v. *E. I. du Pont de Nemours & Co.*, 353 U. S. 586 (1957) 26

United States v. *El Paso Natural Gas Co.*, No. 94, 1963 Term, U. S., April 6, 1964 ..... 10, 22

United States v. *First Nat'l Bank & Trust Co.*, No 36, 1963 Term, U. S., April 6, 1964 27

United States v. *Philadelphia Nat'l Bank*, 374 U. S. 321 (1963) 10

OTHER:

Rahl, *Applicability of the Clayton Act to Potential Competition*, 12 A. B. A. SECTION OF ANTITRUST LAW REPORT (April 1958) 21

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BRIEF FOR APPELLEES

Questions Presented

Pennsalt Chemicals Corporation (Pennsalt) and Olin Mathieson Chemical Corporation (Olin) jointly formed Penn-Olin Chemical Company (Penn-Olin) to produce and sell sodium chlorate in the southeastern United States.

I. Does the formation of Penn-Olin violate Section 7 of the Clayton Act solely because Pennsalt and Olin had each seriously considered and were capable of independent entry into the southeastern sodium chlorate

market, notwithstanding the undisputed findings of the district court that

(a) there was no reasonable probability that but for Penn-Olin both Pennsalt and Olin would have entered the market separately; and

(b) the effect of the formation of Penn-Olin was to increase competition in the relevant market?

II. Does Section 7 of the Clayton Act apply where two corporations form a third to engage in a new enterprise?[1]

III. Does the formation of Penn-Olin violate Section 1 of the Sherman Act?

Statement

Penn-Olin is a new entrant in a market long dominated by two well-entrenched producers. Before Penn-Olin, competition was stagnant. Since Penn-Olin, competition has been vigorous. Yet appellant challenges the formation of Penn-Olin as anti-competitive.

The facts are not in dispute. They are fully stated in the district court's own findings, which appellant accepts and agrees "are amply supported by the record" (GB 28[2]). In February 1960 Pennsalt and Olin agreed to form a jointly-owned corporation to produce and sell sodium chlo-

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[1]Appellees believe this Court need not—as the court below did not—reach this question. Accordingly, it is treated in part II of the argument in this brief.

[2]"GB" refers to the Government's brief to this Court, page citations without a prefix and followed by "a" to the opinion of the district court printed in the appendix to appellant's jurisdictional statement ("JS"), "R." to the printed record in this Court, "PX" to plaintiff's (appellant's) exhibits, and "DX" to defendants' (appellees') exhibits.

rate in the southeastern United States. That agreement followed a two-year period of joint exploration of that market by the two companies. Thereafter Penn-Olin was formed, a sodium chlorate plant was built at Calvert City, Kentucky, and in September 1961 production began at the new plant.

Competition Before Penn-Olin

Admittedly sodium chlorate is the only product and the southeastern United States the only geographical market relevant to this case. Prior to Penn-Olin, two major chemical companies, Hooker Chemical Corporation (Hooker) and American Potash & Chemical Corporation (American Potash) "had a virtual monopoly in the southeast" (34a). They held over 90% of that market. "No new firms had entered the industry in the previous decade; prices were stable; and little effort had been made to expand existing uses or to develop new ones" (GB 8-9, record references omitted).

Since about 1900 Hooker (including its predecessor, Oldbury Electro Chemical Company) has been the largest producer and seller of sodium chlorate in the United States (9a-12a). The plant which it constructed at Columbus, Mississippi, in 1954 was the first sodium chlorate plant in the Southeast (9a-10a). Hooker had a large sales force accustomed to serving the southeastern market (R. 73), and especially the pulp and paper industry which purchased more than 80 per cent of the sodium chlorate sold in that market (84.1 per cent in 1960, 17a n. 8). Hooker also had a technical service force to serve that market (R. 80, 663-64) and the Rapson process for using sodium chlorate to generate chlorine dioxide for bleaching pulp and paper (PX 378, R. 939-40).

American Potash's predecessor began sodium chlorate production in 1941, and in 1958 American Potash built at Aberdeen, Mississippi, the second plant in the Southeast (10a, 22a). To gain entry into that market, American Potash entered into an arrangement with Allied Chemical Corporation (Allied Chemical) whereby Allied Chemical, which had a "large sales force and large technical service facilities" and its own process for generating chlorine dioxide (10a-11a), became exclusive sales agent for American Potash.

Pennsalt had produced sodium chlorate at Portland, Oregon, since 1941 and sold it principally west of the Rockies (11a). As the court below found, Pennsalt could not "compete effectively" for business in the Southeast (24a).

When Penn-Olin was formed there were no other domestic producers of sodium chlorate and imports were insubstantial (16a, 29a n. 19).

The Background and Formation of Penn-Olin

Pennsalt's consideration of a sodium chlorate plant in the Southeast began in 1951 (35a), but by late 1957 the management of Pennsalt, after careful analysis of the southeastern sodium chlorate market, decided it was unlikely that Pennsalt would approve construction of a southeastern chlorate plant on its own (PX 102, R. 692-93).[3] While Pennsalt had extensive experience in the commercial production of sodium chlorate, it did not have any substantial sales contact with the pulp and paper industry in the Southeast. Olin, on the other hand, had never engaged in commercial production or sale of sodium chlorate, but was

[3]Pennsalt's consideration of a separate southeastern sodium chlorate plant is discussed more fully at pp. 12-14, *infra*.

actively engaged in selling other chemicals to the pulp and paper industry (12a, 26a). It owned the Mathieson process for using sodium chlorate to generate chlorine dioxide to bleach paper and had authorized Pennsalt to use that process (11a, 13a n. 5). Having determined that building its own southeastern plant was unlikely, Pennsalt proposed to Olin an exploratory arrangement under which Olin would try to sell to southeastern pulp and paper mills (47a-48a) up to 2,000 tons of Pennsalt's temporary excess production of sodium chlorate. Early in 1958 when Pennsalt and Olin started their joint test of the southeastern market (48a) they "were far removed from the point of becoming actual competitors" (51a).

After it embarked on that arrangement, Olin also gave serious consideration to the possibility of building its own sodium chlorate plant in the Southeast. Olin's management considered and rejected such a proposal in April of 1959.[4]

The market testing arrangement was followed, early in 1960, by negotiations which resulted in the signing of a joint venture letter of intent on February 11, 1960 (5a; PX 175, R. 736-39). Penn-Olin was formed as a Delaware corporation on February 25, 1960 (5a; PX 176, R. 753), and Olin and Pennsalt each were issued one share of its capital stock on March 22, 1960 (PX 317, R. 901; see GB 31 n. 8). Penn-Olin thereafter constructed a 26,500 ton plant which was comparable in size to the existing southeastern plants of Hooker and American Potash. Pennsalt provided its technical know-how and experience in the manufacture of sodium chlorate and was given responsibility for operating the Penn-Olin plant (26a-28a). Olin, given responsibility for sales, provided its chlorine dioxide experience, its technical services, and its sales force to sell the production of the plant to the southeastern pulp mills (27a-28a).

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[4]Olin's consideration of a separate southeastern sodium chlorate plant is discussed more fully at pp. 14-16, *infra*.

The Increase in Competition Since Penn-Olin

The formation of Penn-Olin early in 1960 not only added a strong third competitor to a market then dominated by Hooker and American Potash, but it stimulated the competitive activities of those two producers.

After Penn-Olin was announced, Hooker increased the capacity of its Mississippi plant by approximately 3,000 tons per year (31a) and American Potash nearly doubled the capacity of its southeastern plant (31a).

Moreover, reacting to the entry of Penn-Olin into the market, Hooker and American Potash "attempted to make themselves more formidable as business rivals" (31a). Hooker "employed a new salesman who was a specialist in pulp and paper sales, and installed a pulp and paper research laboratory for its customers. It offered its customers five-year contracts guaranteeing them a firm price during the contract period. It also proposed to increase its selling efforts generally." (31a) American Potash began to offer similar five-year contracts to its customers (31a).

Appellant's own witness, a sales manager of American Potash, testified that there has been no lessening in competition since Penn-Olin and that he knew of no facts likely to lead to a lessening in the future (42a; R. 121-22). And no witness testified that there was any chance that Penn-Olin would lessen competition.

Furthermore, Penn-Olin demonstrably did not foreclose other entries; it was followed into the Southeast market by a fourth producer. In July 1961 Pittsburgh Plate Glass Company (PPG), which the court below found "capable of competing effectively with Penn-Olin or anyone else" (31a; see 43a), announced that it would build a 15,000 ton per year sodium chlorate plant at Lake Charles, Louisiana (12a). PPG has "large technical service, sales, market research, and laboratory forces already serving the

southeastern pulp and paper industry" (12a) and experience gained from operating a plant in Canada which uses PPG's own process for manufacturing sodium chlorate (R. 238-43).[5]

As the result of the entry of Penn-Olin and PPG and the expansion of capacity by Hooker and American Potash, the district court found that "[a]ctual and in-prospect production in the southeast will have more than doubled since the joint venture was entered into, as shown by the following tabulation:

"Company and plant location	Capacity in Tons 1959	Capacity in Tons Projected 1962[6]
Hooker		
Columbus, Miss.	29,150	32,000
AmPot		
Aberdeen, Miss.	12,000	22,500
Penn-Olin		
Calvert City, Ky.		26,500
PPG		
Lake Charles, La.		[1]15,000
Total	41,150	96,000

[1]To be achieved gradually on a stepped-up basis." (43a)

Prior to Penn-Olin, Hooker and the American Potash-Allied Chemical combination had a virtual monopoly of the southeastern market (34a). Penn-Olin was the significant new entrant needed "to challenge the supremacy of [the] two companies which were dominating" the market (27a-28a), and its entry has increased the vigor of competition.

[5]Also in July 1961 Pacific Engineering & Production Company of Nevada announced that it would construct at Henderson, Nevada, a sodium chlorate plant with a capacity of 5,000 tons per year. This plant was to be financed by a $2.4 million loan from American Cyanamid Company, which received options to use Pacific's processes and to acquire all of its assets or 50% of its stock (12a).

[6]The trial ended and the record was closed in November 1961.

The Decision of the District Court

The district court found that it was not reasonably probable that both Pennsalt and Olin would have entered the southeastern sodium chlorate market. The court reasoned that the most favorable assumption from the Government's viewpoint was that one of the two companies, but not both, would have entered the market if Penn-Olin had not been formed (39a). Even on the basis of that assumption, the lower court found nothing to suggest that the competition resulting from the entry of Penn-Olin probably will be less vigorous than the competition which would have resulted if either Pennsalt or Olin had entered on its own (41a-42a). The court concluded that "[t]he advent of Penn-Olin, and later PPG . . . will in all likelihood increase the competition which theretofore existed and bring to buyers of sodium chlorate and to the public the benefits which normally result therefrom." (43a) Accordingly, it held that the formation of Penn-Olin does not violate Section 7 of the Clayton Act, and *a fortiori* does not violate Section 1 of the Sherman Act (6a-7a; 44a).

Summary of Argument

I. Under Section 7 of the Clayton Act the issue is whether the formation of Penn-Olin will, as a reasonable probability, substantially lessen competition in sodium chlorate in the southeastern United States. There is no evidence to support appellant's claim that it will. On the contrary, the uncontroverted evidence and findings show that Penn-Olin has increased—not lessened—such competition.

Prior to Penn-Olin, two long established producers, Hooker and American Potash, dominated a stagnant market which no new competition had entered for a decade. Pennsalt was not able to compete effectively in the Southeast from its Oregon plant. Olin had never produced sodium

chlorate commercially. Pennsalt and Olin each had considered a plant of its own, but found the projected return on investment unattractive. There was no reasonable probability that both Pennsalt and Olin would each have constructed a plant in that market.

For a two year period Pennsalt and Olin jointly explored the market. Then, in February 1960, they formed Penn-Olin, which built a new plant in the Southeast. Penn-Olin not only resulted in the creation of a new competitive facility, but was promptly followed by expansion of the existing facilities of Hooker and American Potash, more aggressive selling by both of them, and the entry of PPG.

Against the positive increase in competition which resulted from Penn-Olin, appellant offers the theory that, without Penn-Olin, either Pennsalt or Olin would have entered the market and the other would have remained a potential competitor. That, appellant asserts, would have increased competition more than did Penn-Olin. But the record contains no evidence to show (a) that either company would have continued to be interested if the other had entered the market, (b) the effect upon competition of such speculative possibilities, or (c) any basis for comparing that effect with the actual increase in competition which resulted from Penn-Olin.

II. Section 7 of the Clayton Act is applicable when one corporation acquires "another corporation engaged also in commerce". Penn-Olin had not engaged in commerce, nor did it acquire any assets that had been so engaged, and therefore Section 7 is not applicable. That section was never intended to, and does not, reach the creation of an entirely new business enterprise.

III. If Section 7 of the Clayton Act is not applicable, the legality of Penn-Olin must be tested under Section 1 of the Sherman Act. When applied in a case such as this,

that section is narrower in scope than Section 7 of the Clayton Act. Therefore, if the effect of Penn-Olin on competition would not violate Section 7, it does not violate Section 1.

Argument

I

THE FORMATION OF PENN-OLIN WILL NOT LESSEN COMPETITION IN THE SOUTHEASTERN SODIUM CHLORATE MARKET.

The issue under Section 7 of the Clayton Act is whether the formation of Penn-Olin will, as a reasonable probability, lessen competition in the production and sale of sodium chlorate in the southeastern United States.

It is important to recognize at the outset that this case is fundamentally different from an "amalgamation" or "merger" of two actual competitors, as in *United States* v. *Philadelphia Nat'l Bank*, 374 U. S. 321 (1963), and in *Brown Shoe Co.* v. *United States*, 370 U. S. 294 (1962), and also from the situation where an actual competitor seeks to protect its market by acquiring a potential competitor which is already a "substantial factor" in the same market, as in *United States* v. *El Paso Natural Gas Co.*, No. 94, 1963 Term, U. S., April 6, 1964, at 7. In each of those cases the challenged merger or acquisition resulted in the removal of a competitor from the relevant market; none dealt with the formation of a new competitor and its entry into the market.

In contrast, the present case requires a determination of the actual and probable future effect on competition of the entry into the market of a new competitor. The question, therefore, is whether appellant has established that the level of competition resulting from the entry of Penn-Olin is likely to be substantially less than the level of competition

that probably would have prevailed but for Penn-Olin. As appellant puts it, "the issue as to substantial lessening of competition depends upon a comparison between the state of competition with Penn-Olin as an active competitor in the relevant market and what probably would have occurred without the joint venture." (GB 28)

Faced with specific findings and uncontradicted evidence that the entry of Penn-Olin into the southeastern sodium chlorate market increased competition, appellant's claim is reduced to the contention that Penn-Olin did not increase competition by a sufficient amount. In appellant's view, Penn-Olin should be enjoined, not because it lessened competition, nor because it was likely to lessen competition in the future, but rather because the increase in competition brought about by its formation *might* be less than *might* have resulted if Penn-Olin were not in existence.

Thus, appellant recognizes (GB 25, 28-29) that its contention requires proof of compound probabilities:

(1) The "reasonable probability that, but for the joint venture," either

(a) both companies would have entered the southeastern market, or

(b) one would have entered while the other "would have had a significant impact on the market as a potential competitor"; and

(2) The reasonable probability that either alternative "would furnish more competition than the joint venture".[7]

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[7]Appellant then proceeds, however, to argue on the basis of speculative possibilities rather than probabilities, referring to its suggested alternatives to the joint venture not in terms of probabilities, but merely as "a real possibility" (GB 27).

1. It is not reasonably probable that Pennsalt and Olin would both have entered the market if Penn-Olin had not been formed.

The first alternative posited by appellant is that both Olin and Pennsalt would have entered the market but for Penn-Olin (GB 25, 35). That contention was rejected by the trial court (39a).

Each company had considered entering the market and had made various cost, marketing, and technological studies, but every time the management of each company concluded that a southeastern plant was not sufficiently attractive (34a-36a). Pennsalt's standard for new investments requires a projected return of approximately 30 per cent before taxes (PX 339, R. 916; R. 328-32); Olin's standard requires a projected return of at least 10 per cent after taxes (R. 135). Although each company would have preferred to enter the market alone (R. 170-73, 267, 337-38), the projected returns, when realistically viewed by the management of each company, never measured up to these standards.[8] The joint venture, with its larger plant, showed a projected return to Pennsalt of 31 per cent before taxes on its net investment (PX 257, R. 852) and to Olin 10.1 per cent after taxes on its gross investment (PX 402, R. 1238; DX 42, R. 1535), thus meeting the rate of return standards of both companies.

Pennsalt

Starting in 1955 Pennsalt made several cost and market studies of a sodium chlorate plant in the Southeast (35a).

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[8]Appellant's comparisons of projected rates of return from proposed business ventures with actual returns from going businesses (GB 37) completely ignore the realities of business life. Every new venture involves a substantial risk against which must be weighed the most favorable estimates that its proponents suggest (R. 172, 1429, 1434). Thus, projected rates of return involve predictions of capital and operating costs and assume sales at plant capacity. Furthermore, in order for a new venture to improve the results of total operations, its projected rate of return must be in excess of the return on invested assets already committed.

The first of these considered the economics of a sodium chlorate plant at Calvert City, Kentucky, and showed an anticipated before-tax return in the range of 7-15 per cent (R. 259-60; PX 66, R. 634-35). This return was so unattractive that "the expense of refining these figures further would be unwarranted" (*ibid.*). Some additional studies were made in early 1956, but no proposal resulted (R. 261-62).

Hooker's announcement in December 1956 that it was going to increase the capacity of its Mississippi plant led the Pennsalt management to determine "once and for all" whether Pennsalt should construct a sodium chlorate plant in the Southeast (R. 263-64; PX 74, R. 639-40). After a series of cost and marketing studies (PX 96A, 96B, 96C, R. 652-85), the Pennsalt management met on December 5, 1957, to make a final decision concerning a Pennsalt sodium chlorate project in the East (R. 268):

> "Mr. Drake [the President of Pennsalt] asked all present two questions:
>
> "(1) Do we agree that it is unlikely in view of the capital requirements and relatively low return on investment that we alone would approve construction of an eastern chlorate plant?
>
> "(2) Would Olin-Mathieson be a logical partner?
>
> "The answer to both questions was yes." (PX 102, R. 692-93.)

Having decided that it was unlikely, then or in the future, that Pennsalt would approve construction of an eastern chlorate plant on its own, Pennsalt discussed with Olin the exploratory arrangement whereby Olin would act as Pennsalt's agent to sell up to 2,000 tons of sodium chlorate per year in the Southeast. Shipments were to be made from Pennsalt's Oregon plant which, because of a

recent expansion, had temporary excess capacity (48a). The arrangement was made on a year-to-year basis and continued in effect until Penn-Olin was formed in 1960 (47a-48a).

Subsequent to its December 1957 decision, Pennsalt considered a combined sodium chlorate-ammonium perchlorate project as a means of improving the anticipated rate of return from a southeastern plant (36a n. 22; R. 274-78). That project was never approved, however, because the demand for ammonium perchlorate did not develop as initially predicted (R. 279-80, 317-18, 344-45, 349).[9]

Reviewing Pennsalt's various considerations of a sodium chlorate plant and then of a combined sodium chlorate-ammonium perchlorate plant, the trial court concluded that Pennsalt never decided to proceed with a southeastern plant, "due primarily to the inability of the management to satisfy itself that the plant would be sufficiently profitable to meet the rate of return standard which it had established as a condition for new investments" (35a).

Olin

Although Olin never produced sodium chlorate commercially, it had extensive experience in the technical aspects of bleaching pulp and paper and valuable contacts with the pulp and paper mills in the Southeast.[10] Research personnel in Olin's Chemicals Division several times advocated that research on sodium chlorate be continued and

[9] In February 1959 Pennsalt completed a 2,000 ton ammonium perchlorate pilot plant at Portland, Oregon (R. 274-75, 282, 339-40), but an Assistant Secretary of Defense subsequently advised Pennsalt that the supply of ammonium perchlorate would exceed the demand until at least 1964 (R. 282; DX 2, R. 1504-05).

[10] Olin also purchased some sodium chlorate for its own use, but such amounts were stipulated to be insubstantial (29a n. 19), not "sizeable," as appellant now describes them (GB 4).

that building a plant be considered (R. 231), but Division management doubted whether they had developed adequate sodium chlorate technology (R. 231) and did not forward any such recommendation to corporate management until April 1959 (R. 169-70).

Each of Olin's seven operating divisions was required annually to advise Olin's corporate management of the division's forward thinking by a planning or "Whither" report. Since Olin's divisions all compete for corporate funds, they may not embark on capital projects without corporate management's approval of a separate capital appropriations request (R. 125-27).

The planning report submitted by the Chemicals Division in 1958 was the first to refer to sodium chlorate, but it simply included chlorates and perchlorates as products Olin did not make but in which the Chemicals Division was interested (PX 15, R. 510). The Chemicals Division made no specific recommendations with respect to those products (R. 169-70).

The Division's 1959 planning report did recommend a sodium chlorate project, but that recommendation was turned down at an April 1959 meeting of Olin's corporate staff (PX 34, R. 578; R. 131-33, 142-43). Corporate management was always dubious about the Chemicals Division's cost estimates (R. 172, 1267-68), just as Division management was always conscious of the need to temper their scientists' enthusiasm for new products with the uncertainties of plant construction and operation (R. 231). Although the project was reconsidered by the Chemicals Division later in 1959, that reconsideration was never discussed with corporate management (R. 133, 143).

In early 1960 when the joint venture proposal was broached to Olin's president, Mr. Osborne, he considered

whether Olin should proceed with its own sodium chlorate plant. To him the answer was clearly that Olin should not:

> "BY THE COURT:
>
> "Q. . . .You say a decision was made not to go alone. I take it that was in the context of a decision to go by the joint venture route?
>
> "A. Yes.
>
> "Q. Did you make any or face the question of whether if there was no joint venture in prospect or it was impossible for any reason, did you face the question of whether or not you would go it alone?
>
> "A. Yes, I did.
>
> "Q. What was your decision?
>
> "A. The answer was that we would not." (R. 142)[11]

Appellant accepts all the district court's findings of fact (GB 28); nevertheless, appellant's first argument is based on the assumption that both Pennsalt and Olin would have entered the southeastern sodium chlorate market if Penn-Olin had not been formed (GB 25, 29, 35, 36-41). The trial court specifically found to the contrary. It recognized that certainly both companies would not have simultaneously determined to build their own plants, and that a

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[11]Even after the February 11, 1960, letter of intent, the proposed joint venture—economically more attractive to Olin than a plant of its own—was rejected by Olin's corporate management because of its unsatisfactory projected rate of return (PX 409, R. 1429-30; DX 33, R. 1523-24). It was only after the projected rate of return was improved by eliminating packaging facilities and increasing anticipated production that Mr. Osborne ultimately approved it (PX 402, R. 1237-38; DX 42, R. 1528-36). There simply is no evidence to support the statement in appellant's brief that when Olin's management was re-appraising Penn-Olin "the prospects for independent entry by both Pennsalt and Olin were extremely favorable" (GB 41 n. 12; see PX 245, R. 836-37).

decision by one company to proceed with its own plant would affect the other's thinking. Finding that the record afforded no clue as to what action might have been taken in such a case, the court found:

> ". . . It is therefore impossible to conclude that as a matter of reasonable probability *both* Pennsalt and Olin would have built plants in the southeast if Penn-Olin had not been created." (39a)

2. There is no evidence to show a reasonable probability that, if either Olin or Pennsalt had entered the market, the other would have remained a significant potential competitor.

Alternatively, appellant argues that the formation of Penn-Olin prevented the competition that would have resulted if either Pennsalt or Olin had entered the market while the other remained a significant potential competitor, "threatening entry whenever market conditions offered a profit" (GB 35). That argument is not based on any evidence or finding of fact, but solely on what the trial court labeled "[t]he most favorable assumption that can be made from the Government's standpoint", namely the postulate "that one company would have decided to build while the other continued to ponder." (39a)

There is indeed no evidence that, if either Pennsalt or Olin had entered the southeastern market, the other would have continued actively to consider entry. As appellant admitted in its jurisdictional statement in this Court, "the record afforded 'no clue as to what action might have been taken if the problem had arisen'" (JS 18) and any such "prediction would have been a matter of sheer speculation, especially since '[n]either company had ever faced the problem'" (JS 17-18).

Despite protracted study, neither Olin nor Pennsalt had been able to convince itself that the southeastern market, in which Hooker and American Potash were then the only producers, was sufficiently attractive to justify independent entry (37a). Furthermore, "[t]he considerations which might induce one company to build its own plant when Hooker and AmPot were the only competitors would not necessarily be the same if a third competitor were about to enter the market" (39a). Thus, prior to the joint venture "Pennsalt was of the opinion that the southeastern market could handle only one more significant producer" (33a). As the district court found, by "1960 the southeastern market was not a deficit area" (20a) and "[t]he supply situation was to be further improved in December 1960 when AmPot's capacity at Aberdeen was increased by 7,500 tons" (20a n. 11; see 23a). The subsequent entry of PPG as a fourth competitor would have made the prospect even less attractive to Pennsalt or Olin.

In sum, there is nothing in the record or findings to show whether Pennsalt or Olin would have continued to consider entering the market if the other had already entered. Appellant's arguments about the ensuing benefits to competition are based on "sheer speculation" (JS 17), not a reasonable probability.

3. There is no evidence that the entry into the market of either Pennsalt or Olin alone would have resulted in greater competition than was produced by Penn-Olin.

Even if appellant had established the probability that but for Penn-Olin either Pennsalt or Olin would have entered the market alone and the other remained a potential competitor, it was still incumbent upon appellant to show that such a situation would have produced greater

competition than resulted from the formation of Penn-Olin. There was no showing to that effect.

Appellant now claims that it was erroneously foreclosed from making such a showing by what it describes as a holding of the trial court that "the government had the burden of showing a reasonable probability that '*both* companies would have entered the market as individual competitors if Penn-Olin had not been formed' " (GB 35). But the court below made no such holding. What really happened was that the court found no probability that both would have entered, and therefore never reached the question whether substantially more competition would have resulted if they had. The court then turned to a comparison between the impact on competition of the entry by Penn-Olin and separate entry by either Pennsalt or Olin, but it found no evidence upon which to base such a comparison. The Government had offered none and had advised the court that such a comparison was not appropriate under Section 7:

> "THE COURT: Let me ask you: If I should come to the conclusion that as a matter of reasonable probability, absent the joint venture, Olin would have constructed a factory and sold its products in the southeast, if I should come to that conclusion, does the Government contend that from that the Government must * * * win?"
>
> "MR. FREED: Yes."
>
> "THE COURT: Let me ask you: Isn't there a further question as to whether or not the construction of a plant by Olin, sales of products by Olin in the southeast, would have produced a more competitive situation than did the joint venture?"
>
> "MR. FREED: No, Your Honor, that would not be a legitimate question. It is not for the Government and it is not for the courts to weigh the advantages of combinations of competitors and what

they give to the economy, and what individual companies give to the economy * * * " (40a n. 25).

Consistent with that position, the Government did not introduce evidence that would permit a comparison between the impact on competition resulting from Penn-Olin and separate entry by either Pennsalt or Olin. Accordingly, the district court could only observe that, "[s]olely as a matter of theory, however, no reason exists to suppose that Penn-Olin will be a less effective competitor than Pennsalt or Olin would have been. The contrary conclusion is more reasonable." (41a-42a)

The Government now argues that competition is lessened because neither Pennsalt nor Olin is "waiting in the wings" (GB 48). But not having attempted to prove the extent to which such a situation would benefit competition, appellant now rests its argument entirely on speculation. Thus, it claims that "there can be little question as to the substantiality of the benefit to competition of having a capable, imaginative, and aggressive competitor waiting in the wings to enter an oligopolistic market" (GB 47-48) and asserts that "workable competition depends almost entirely" upon such favorable potential entrants (GB 49).

Appellant makes no attempt, however, to apply its reasoning to the facts of this case. It argued below that Allied Chemical, Wyandotte Chemicals Corporation, and Virginia Chemicals & Smelting Company (as well as Pennsalt, Olin, and PPG) had each considered entering this market (32a-33a).[12] Yet, despite the presence of those chemical companies "waiting in the wings", competition had been stagnant for a decade (GB 8-9). Thus, the lack of competition before Penn-Olin belies any benefits which appellant would now ascribe to Pennsalt or Olin as a potential entrant.

[12]Under appellant's present theory, Allied Chemical, Wyandotte Chemicals Corporation, and Virginia Chemicals & Smelting Company are still "in the wings", but appellant ignores that possibility.

We do not contend that the effect of potential competition should be ignored. Potential competition is concededly a factor to be taken into account, and its reduction or elimination may adversely affect actual competition in the market place. But the fact that it is potential does not make it more significant than actual competition.[13] Nevertheless, appellant argues (GB 24) that two potential competitors "plainly" are better than one actual competitor, and does not attempt the required analysis of the effect of potential competition in the relevant market.

In *Brown Shoe Co.* v. *United States*, 370 U. S. 294, 321-22 (1962), this Court held that a merger must be "functionally viewed, in the context of its particular industry", in order to determine whether it may substantially lessen competition and made clear that a careful analysis must be made of the market involved and of the probable effects of the particular acquisition on that market.

Lacking the basis for such analysis, appellant urges that the joint venture is necessarily unlawful if both Pennsalt and Olin were (1) physically capable of entering the market, and (2) seriously considering such entry (GB 24). Without any authority to support that proposition, appellant's brief blandly asserts that such a joint venture would be prohibited "for much the same reasons that, in many circumstances, a company actively selling in a market may not acquire a significant potential competitor which is likely to enter that market". (GB 24) Just what the "same

[13] "No economist has said, so far as I know, that potential competition in the abstract is as good a force as actual competition. It would seem that actual competition in being would always be preferable. It is actual competition upon which the Clayton Act has always focused primarily. Anyone who takes the position that the elimination of competition not in being is as serious as elimination of actual competition must assume a heavy burden of proof." Professor James A. Rahl, *Applicability of the Clayton Act to Potential Competition*, 12 A. B. A. SECTION OF ANTITRUST LAW REPORT 128, 136 (April 1958). (Footnotes omitted.)

reasons" are is left unexplained. Where one company already in the market acquires "a significant potential competitor" and there is no counter-balancing benefit in the relevant market, competition may well be lessened. *E.g., United States* v. *El Paso Natural Gas Co.*, No. 94, 1963 Term, U. S.; April 6, 1964. But where two companies, neither of which is in the market, jointly enter a new field, the effect on competition can be determined only by comparing the increase in competition from this new entry with the probable level of competition absent the joint venture.

The findings of the trial court, based on careful consideration of the evidence, establish that Penn-Olin brought about a marked increase in competition. It was the means by which the capabilities of Pennsalt and Olin were joined "to break into a market to challenge the supremacy of two companies which were dominating it" (27a-28a).

Appellant interviewed consumers of sodium chlorate, but failed to "introduce any testimony from purchasers of sodium chlorate who complained of any lessening of competition in the industry." (42a). Appellant also had interviewed and corresponded with the existing sodium chlorate producers and a number of other chemical companies, but "[i]n spite of this, no witness was called to testify that the vigor of competition in the sale of sodium chlorate had been, or is likely to be, lessened by Penn-Olin" (42a). On the contrary, appellant's witness, Mr. Dirksen, Eastern General Sales Manager of American Potash, testified that competition is "vigorous", that there had been "no lessening in competition since the establishment of Penn-Olin", and that he knew of "no facts likely to lead to a lessening in the future" (42a; R. 121-22).

The Government now seeks to remedy the lack of any evidence that Penn-Olin substantially lessened competition by attempting to shift the burden of proof:

> "Finally, even if it were relevant, the record is barren of any indication of benefits to competition from the joint venture that could compensate for and justify the lessening of competition which, as a matter of reasonable probability, the joint venture will cause." (GB 53)

That simply is not true. There was substantial evidence of the increase in the vigor of competition resulting from the entry of Penn-Olin into the southeastern sodium chlorate market (27a-28a; 30a-34a). And the trial court specifically found that the "advent of Penn-Olin, and later PPG . . . will in all likelihood increase the competition" and thereby benefit buyers of sodium chlorate and the public (43a).

Appellant would outweigh the positive and actual increase in competition which resulted from Penn-Olin with "sheer speculation" about "what might have been" if one company had entered the market and the other had remained a potential competitor (JS 17, 18). But there was no evidence of the effect on competition of such possibilities, nor any basis for comparing that effect with the actual increase in competition which resulted from the reality of Penn-Olin. There is ample evidence of more vigorous competition after Penn-Olin; it is the other half of the comparison that is lacking. "Statutes existed for dealing with clear-cut menaces to competition; no statute was sought for dealing with ephemeral possibilities." *Brown Shoe Co.* v. *United States, supra,* 370 U. S. at 323.

II

SECTION 7 OF THE CLAYTON ACT IS NOT APPLICABLE TO THE CREATION OF A NEW ENTERPRISE.

Appellant argues that the formation of Penn-Olin and the acquisition of its stock by Olin and Pennsalt constituted an acquisition "of another corporation engaged also in [in-

terstate] commerce" (GB 29). To reach this conclusion it argues that a corporation is engaged in interstate commerce if "it is either conducting an interstate business *or is intending or preparing to do so*" (GB 30, emphasis added). But the first paragraph of Section 7 requires the acquired company to be "engaged" in commerce, not "intending or preparing to do so". To make Section 7 applicable here, appellant tries to rewrite the statute.

Section 7 is and always has been concerned with the acquisition of existing business enterprises, not with the formal procedures of incorporation. When the Clayton Act was enacted in 1914, the then familiar pattern of acquisition of competing business enterprises was by way of the purchase of corporate stock and, accordingly, Section 7 in its original form prohibited only acquisitions of stock. *Brown Shoe Co.* v. *United States, supra,* 370 U. S. at 312-14. That limitation, however, made it easy to avoid the Section entirely by acquiring assets instead of stock, *FTC* v. *Western Meat Co.,* 272 U. S. 554, 561 (1926), and the 1950 amendment of Section 7 was designed primarily to plug that "loophole" by prohibiting the acquisition of assets as well as stock. *Brown Shoe Co.* v. *United States, supra,* 370 U. S. at 316.

In either case, however, the test of Section 7 application is whether the enterprise to be acquired is engaged in commerce—not whether a corporation formed as the instrumentality for the acquisition is itself engaged in commerce at the moment of its formation. *Aluminum Co. of America* v. *FTC,* 284 Fed. 401, 407-08 (3d Cir. 1922), *cert. denied,* 261 U. S. 616 (1923).

The significant fact about Penn-Olin is not that it "intended" to engage in commerce, but that it was formed to create a wholly new enterprise, rather than to acquire an existing business or any assets previously engaged in

commerce. Appellant concedes (GB 30) that the limitation of Section 7 to acquisitions of stock or assets of corporations engaged in commerce makes it inapplicable to the acquisition of a wholly intrastate firm. But a nonexistent enterprise is even farther removed from interstate commerce than one actually engaged in intrastate commerce.[14]

Appellant's suggestion (GB 33) that Penn-Olin was not a new enterprise, but was created to take over Pennsalt's existing interstate business in the Southeast is unsupported by the record. Pennsalt had not been able to compete effectively from its plant in the Northwest (21a, 24a), and Penn-Olin was a new enterprise formed to break into the southeastern market.

If in fact Penn-Olin had been formed to take over an existing business of either of its parent corporations, then the third paragraph of Section 7 (GB 30) would be applicable:

> "... Nor shall anything contained in this section prevent a corporation engaged in commerce from causing the formation of subsidiary corporations for the actual carrying on of their immediate lawful business, or the natural and legitimate branches or extensions thereof, or from owning and holding all or a part of the stock of such subsidiary corporations, when the effect of such formation is not to substantially lessen competition." 15 U. S. C. §18.

The test of illegality would then be whether the effect of the formation of Penn-Olin "is", rather than whether it

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[14] Appellant also appears to suggest that Pennsalt and Olin acquired an interest in a going business because they acquired the right to additional shares of the capital stock of Penn-Olin after the new venture was well launched (GB 30-31). That reliance is misplaced. From the very inception of the Penn-Olin venture, Pennsalt and Olin each owned one-half of it and neither acquired any further or different interest thereafter.

"may be", substantially to lessen competition. Since plaintiff has failed to establish even a probability of such lessening of competition, it cannot show an actual lessening. In this case, however, the record is clear that Penn-Olin was formed not to take over any existing business, but to create an entirely new enterprise and Section 7 is, therefore, inapplicable.

III

THE FORMATION OF PENN-OLIN DID NOT VIOLATE SECTION 1 OF THE SHERMAN ACT.

If Section 7 of the Clayton Act is not applicable, appellant must establish that the formation of Penn-Olin was a "combination . . . in restraint of trade or commerce among the several states" in violation of Section 1 of the Sherman Act. That section is narrower than the amended Section 7, which was intended to cover incipient restraints of trade outside the reach of the Sherman Act. *E.g., Brown Shoe Co.* v. *United States,* 370 U. S. 294, 318 (1962); *United States* v. *E. I. du Pont de Nemours & Co.,* 353 U. S. 586, 597 (1957).

Appellant asserts that Clayton Act standards of legality should be read into the Sherman Act; "that the more explicit policy of the Clayton Act be used to illuminate the general terms of the Sherman Act in situations where the former [latter?] statute is indisputably applicable . . . ." (GB 56). This would make Section 7, and especially its 1950 amendment, completely superfluous.

Since the 1950 amendment of Section 7 was intended to extend Section 7 beyond the limits of the Sherman Act (GB 54), and resulted from congressional dissatisfaction with the use of Sherman Act tests under Section 7, it is

not permissible for appellant now to reverse itself and apply the broadened Section 7 to "illuminate" Section 1.

In support of its position, appellant cites *United States* v. *Columbia Steel Co.*, 334 U. S. 495 (1948). But the Sherman Act test of illegality there set forth (*id.* at 527), requiring examination of such factors as "the percentage of business controlled, the strength of the remaining competition, whether the action springs from business requirements or purpose to monopolize, the probable development of the industry, consumer demands, and other characteristics of the market", is clearly not satisfied here. Nor may appellant derive any comfort from *United States* v. *First Nat'l Bank & Trust Co.*, No. 36, 1963 Term, U. S., April 6, 1964. In the present case no testimony was elicited as to any anti-competitive result of the formation of Penn-Olin, nor were Pennsalt and Olin "major competitive factors in a relevant market". *Id.* at 6-7.[15]

In any event, the issue here is whether the formation of Penn-Olin was anti-competitive, as the Government claims, or whether Penn-Olin increased competition, as appellees assert. If it did not "lessen competition" in a Clayton Act sense, it did not "unduly restrain competition" in a Sherman Act sense.

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[15] The two other cases relied upon by plaintiff are not relevant. In *Northern Pac. Ry.* v. *United States*, 356 U. S. 1 (1958), this Court did not refer to the Clayton Act, and reached a result based only on the Sherman Act. *Id.* at 8, 9. In *FTC* v. *Motion Picture Advertising Serv. Co.*, 344 U. S. 392 (1953), this Court was concerned with the application of Section 5 of the Federal Trade Commission Act and noted that "[t]he 'unfair methods of competition,' which are condemned by § 5(a) of the Act, are not confined to those that were . . . condemned by the Sherman Act." 344 U. S. at 394. The Court was not, as appellant asserted, reading Clayton Act standards into the Sherman Act.

Conclusion

For the foregoing reasons, the judgment of the district court should be affirmed.

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APPENDIX

PX 1-375 were offered into evidence at R. 30-39 and were received into evidence at R. 62.

PX 376 was offered into evidence at R. 61 and was received at R. 62.

All portions of PX 377-411 which are referred to in this brief were offered into evidence at R. 44-59 and were received at R. 62.

PX 412-14 were offered and received into evidence at R. 62-66.

PX 415 was offered and received into evidence at R. 194-99.

PX 416-28 were offered into evidence at R. 418 and were received at trial transcript 824-25 (not printed).

DX 1-49 were offered into evidence at R. 417-18 and were received at trial transcript 824-25 (not printed).